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THE MONIST

THE FINALISM OF PSYCHICAL PROCESSES: ITS NATURE AND ITS ORIGIN[1]

IN order to understand the nature and the origin of the finalism of psychical phenomena, we should consider it in its general relation to the finalism of all life.

Even a rapid glance at the various fundamental manifestations of life discloses their inmost teleological nature. It is manifest throughout, from assimilation and metabolism themselves, the most elementary of all biological phenomena, to the most complex physiological and psychical processes.

Assimilation is a choice. Living substance which is ever destroyed during its phase of functional activity and ever builds up during the following period of reparative rest, *selects*, from the most complex mixture of chemical substances in solution found in the nourishing liquid, precisely those compounds or radicals or parts of atomic groups which are capable of reconstituting it in the identical specific character which it had prior to its destruction. In so far as it is *selection* and in so far as it endows living substance with such a property of self-reconstruction which

[1]This paper was read at the Eighth International Congress of Psychology held in Groningen, September 6-11, 1926. Its translation from the French we owe to Dr. R. A. Tsanoff. An elaboration of some of the points in this paper may be found in Dr. Rignano's recent booklet, *Man Not a Machine* (1916) in the series of *Psyche Miniatures*. With reference to this book Professor D. Fraser-Harris, of London, has written as follows: "This brightly written little book contains the essence of the statement of the anti-materialistic position in biology. It presents in rapid succession the various aspects under which it is impossible to regard the growth of the animal organism as the result of a process from which meaning, purpose and destiny are eliminated. The title scarcely conveys in its entirety the scope or intention of the book. Explain it how we may, the living organism is pre-adapted to correspond with its environment, with a degree of accuracy which can only be conceived of

no other physico-chemical process possesses, assimilation does offer a very clear finalist aspect.

Metabolism, in its turn, manifests the fundamental property—not to be found in any process in the inorganic *natural* world (that is to say, in any process which has not, machine-like, been subjected to man's purposive intervention)—the property, namely, of self-maintenance and self-rearrangement in a *stable equilibrium.* Thus we get this so characteristic property of self-conservation, eminently teleological and found exclusively in living substance.

If we pass to *phenomena of generation and regeneration,* the faculty of self-construction, revealed thus as special and exclusive in organisms, the "harmony of compo-

as the outcome of prescient intelligence. If the animal organism is a machine, it is a machine which has developed from a microscopically small egg into a visible assemblage of interrelated parts each predestined not only to fulfill a specific function but to work in harmonious cooperation with every other part, no matter how distant. And not only so, but this extraordinary machine is continually building up its own structure from materials which are chemically quite other than those of its own constitution. Finally, this self-repairing machine is able to reproduce itself, for it can, at intervals, throw off new and immature machines capable of an independent existence—truly a miraculous machine! Professor Rignano has given the name of "finalism" to his explanation of how those wonderful things have come to be. He is the champion of the teleological position as Loeb was of the mechanical. He lays a great deal of stress on what he calls the "physiological invariance" or "the stable equilibrium" of the metabolism of living matter. This aspect is the counterpart of affectibility or the power to respond to the stimulations of the environment; it is the property of *not* being the plaything of the environmental forces. Noel Paton and Fraser-Harris have emphasized this vital property, the physiological counterpart of affectibility, under the terms Functional or Physiological Inertia. When the author alludes to physiological invariance and the organism's tendency to remain unchanged (p. 55) he is describing precisely what is meant by functional inertia, for he writes (p. 36): "Nothing of the kind happens in the physico-chemical processes of the inorganic world which, though they remain continually in equilibrium with new environmental energetic conditions, never tend spontaneously to place themselves in a stationary energetic state, nor to do everything possible to maintain themselves in it when disturbing agents intervene." Physiologically it is always asking "what is this for?" And when that has been answered, the next question emerges, "How did such an organism or organ come to be?" The answer of the bio-mechanist is woefully inadequate, however simple and ingenious it may appear. Professor Rignano's position may be given in his own words (p. 42)—"Instead of closing our eyes to reality and obstinately repeating that nothing purposive is met with in the phenomena of new adaptation, and that they can be wholly explained by the properties of dead matter, it is more in keeping with a sound scientific spirit to determine what all those different phenomena have in common and what differentiates them from inorganic matter, so as to explain them with some special hypothesis of life." This short treatise may with confidence be recommended to any one who still holds that modern biology is necessarily materialistic." (Ed.)

sition" which the embryo in the course of its development manifests in all its stages, the clearly predetermined end towards which ontogenetic development tends, the aspect which the latter assumes as if it were guided or directed by a sort of occult intelligence or entelechy:—all this impresses these generative processes with a very pronounced teleological aspect which is plain even to the layman's eye.

With regard to the finalism of the *phenomena of pre-established adaptation,* it is characterized by the fact that the organism, the moment it comes into contact with the outside world and even before the outside world can have exerted any plasmatic action whatever on it, shows itself completely endowed with all the organs and capable of all the functions calculated to assure its adaptation to its environment.

But the *faculty of new adaptation* has a no less pronounced finalist aspect: we need but reflect that it implies fundamentally an activity resisting all that disturbs the normal physiological state, a resisting activity which no dead matter manifests.

The finalism of the *behavior of lower organisms* is no less evident in that this behavior always aims at maintaining the little animal in its *optimum* of environment and in that it is always at the outset a trial and error process, while all mechanistic explanations are puerile and simplistic in undertaking to account for this behavior by means of the theory of tropisms.

Finally, the teleological aspect of the *reflexes and instincts* of the higher organisms is so pronounced that it is precisely these reflexes and instincts which, perhaps more than any other manifestation of life, have served to give the biologist the impression that the organism is a "machine" each element of which, even the least, must have been contrived so as to vie with all the others in conserving the life of the organism itself.

Well, then, we have succeeded, in our work on *Biological Memory,*[2] in explaining the finalist aspect of all these various and numerous manifestations of life, by the *mnemonic property* exclusively peculiar to living matter. Now, the finalism of psychical phenomena is related to the finalism of life in general precisely in so far as it also is of mnemonic origin and nature.

We began by showing the mnemonic origin and nature of the *affective tendencies* which are the animating dynamic of all the behavior of each organism translated into movements, as well as of all psychic activity in the strict sense of the term.

It suffices, then, to show that all mental phenomena, even the most complex, result from the interplay of these two elementary psychical phenomena, affective tendencies and sensory evocations. Affective tendencies and sensory evocations, being both actually of mnemonic origin and nature, it is evident that if we can deduce from their interplay all mental activity, we shall show thereby that the latter also results, in the last analysis, from the mnemonic property to which these elementary psychical phenomena owe their origin. Precisely this we have tried to do in our work on *The Psychology of Reasoning.*[3]

It is thus, for example, that *will* we have seen to originate from the opposition between an affective tendency directed toward a future end and another aiming at a present end, when this latter tendency is overpowered by the first. From the opposition between a primary affective tendency concerning a given good, and a secondary affective tendency holding it in suspense for the moment through the fear that, if given free play, it may not attain the desired result, arise, as we have seen, *attention,* with all it effects

[2]Kegan Paul, Trench, Trubner and Co., Ltd., London, 1925.

[3]Kegan Paul, Trench, Trubner and Co., Ltd., London, 1923.

of more precise perception and more minute examination of whatever rouses interest at the moment. When the affective tendencies themselves are spurred suddenly and intensively, we see the rise of the *emotions,* while the quieting of their suddenness and intensity produces the entire scale of *human feelings,* down to the coldest *tenacity in action,* a tenacity affective but not emotional, and the more effectual because of the smaller portion of the affective discharge dispersed in disordered and useless visceral movements characteristic of emotion.

Consciousness, in turn, heretofore the greatest enigma of psychic life, has been shown by us to be, not so much an intrinsic property of psychic states as such as a property extrinsic to each of these states, resulting from a certain modality of affective reference which these states present to each other. And we have come to consider the *unity of consciousness* as being due to the great extension of the cerebral seats of the affective tendencies themselves, an extension which most often renders impossible the stimulating, at each given moment, of more than one affective constellation at a time (save in normal cases of *absent-mindedness* and in pathological cases of *double-personality.*)

We have also tried to show, in the aforementioned work, that *reasoning* is nothing else but a series of operations or experiments simply thought of, and that a reasoning man who thinks "with attention" is animated at the same time by a primary affective tendency and by a secondary affective tendency: the primary is that one which, by means of opportune sensory evocations, imagines and follows "with the eyes of the mind" the different experimental combinations or the various vicissitudes in which the object arousing the particular interest at the moment is mentally involved; while the secondary tendency, which at each stage of attentive reasoning holds the primary in suspense, consists in the fear of attributing to each simply imagined

experiment a result not quite identical with the result which this experiment would yield if actually performed.

We have thus been able to ascertain that the *coherence* or *incoherence* of the entire process of reasoning depends on the greater or lesser persisting capacity of the primary affective tendency, while the reasoning itself is *logical* or *illogical* depending on the greater or lesser persistence of the secondary affective tendency. This has been confirmed further by the examination of *dreams,* which are incoherent and illogical owing precisely to their lack of affectivity, and also by the examination of *reasonings of subjects gone mad,* reasonings which, in monoaffective monomaniacs, are coherent but illogical, while in insane men characterized by instability (maniacs) or impotence (confused) or absence (dements) of affective tendencies, the reasonings strike us, on the contrary, with their incoherence.

From the affective classification, furthermore, arise, as we have seen, the *concepts,* and these serve more and more as a basis of reasoning in its twofold evolution: *from concrete to abstract reasoning* and *from intuitive to deductive reasoning,* peculiar to science and reaching its summit in *mathematical reasoning.*

Finally, we observe the distinction and then the clear separation between objective or constructive reasoning, on the one hand, *i. e.,* reasoning in the strict sense of the term, inspired solely by the desire to know and to discover the truth, that is, to foresee the consequences of given acts, before getting their performance under way, and, on the other hand, *intentional or classificatory reasoning, dialectical or metaphysical,* whose aim consists in disclosing particular given facts as coming under certain given categories rather than under certain other categories, or in considering the universe as a whole to be such as one would have it rather than such as it actually is.

Thus it is that *affective activity* (likewise of mnemonic

nature and origin, be it remembered) has seemed to us to impregnate all manifestations of *thought*. Even more: it is disclosed as being the single and unique fashioner of thought itself which, utilizing materials of an imaginative order stored up in our mnemonic sensory stock, erects all the edifices of *our imaginative and ratiocinative mind,* from the humblest and lowest structure of common mentality to the most superb and sublime edifice of the man of genius.

Thus we have viewed all intellectual activity as itself also due, in the last analysis, to the mnemonic property of living substance, and as being the most characteristic manifestation of the finalist aspect of life, and likewise the one showing in the most irrefutable manner the absolute incapacity of a mechanistic theory to explain by itself life in its totality.

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CONTEMPORARY PHILOSOPHIC TENDENCIES IN SOUTH AMERICA, WITH SPECIAL REFERENCE TO ARGENTINA

AN estimate of the philosophic culture in South America can be made by taking the word "philosophy" in either its general or its technical sense. Many historians who have written on the history of general ideas, and particularly when dealing with the history of the Argentine Republic, have preferred to give schematic outlines of the thought inherent in the political and pedagogical ideologies. In this manner of course any civilized country has philosophic activities, since its educational and legal spheres involve cardinal principles of human conduct.

It may be said, moreover, that in South America philosophic thought—even in this sense—has generally been the result of the adoption and application of European philosophic speculation rather than the fruit of a preoccupation with the subject matter of philosophy proper. But in its transmission to these new regions of the world, European thought acquired a vernacular coloring which is in itself of no small interest to the historian. It represents a possession and a hope of South American culture. Thus in Argentina—to take one example—there are elements of thought that are specifically Argentinian, despite their European roots.

Keeping in mind, then, the fact that in South America the prevailing tendency has been to put European thought

to practical application, and using Argentina as a specific model, we may trace the evolution of South American culture under a large number of more or less diverse influences. We may note first of all the Scholastic philosophy dominant during the early period of colonization; then the contributions of French thought during the struggle for national independence; after that, the influence of the European romantic movements of the nineteenth century during the period of constitutional organization; and finally the overwhelming influence gained by positivism during the period of economic development and prosperity.

Positivism has dominated Argentina and South America as a whole during the last forty years. At the present time, it should be observed, the votaries of positivism tend to emphasize chiefly the negative aspect of the thought of Comte and Spencer. We say negative, first, because it neglects the fundamental problems of philosophy, and secondly, because it repudiates—at least in theory—all metaphysical preoccupations, professing instead a vague spirit of agnosticism. Moreover it also has neglected the analysis of the very logic of positivism. Some of those attached to positivism—the more dogmatic ones—have devoted themselves to the metaphysical interpretation of Darwinian biology in the manner of Haeckel. One result of this was the brief *Creed* of Ameghino—the great Argentinian paleontologist, who in that work makes a bold profession of philosophic faith on the basis of a mystically materialistic cosmology. The explanation of this phenomenon is simple. Haeckel is one of those chiefly responsible for the vague philosophic thought of Spanish America. A noisy and decrepit Haeckelian senility found in its ranks educational scientists and literary psychiatrists, whose pamphlets on "the future of philosophy" constitute valuable documents for the future historian of the philosophic dilettantism on the coast of the Plata.

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Positivism, it may be said bluntly, did not produce anything valuable in philosophy proper in South America. It is fair to recognize, however, that it gave some fruit in the domains of the social, juridical and pedagogical sciences, especially under the influence of an evolutionary standpoint understood in the manner of Spencer. Here is reflected the interest in positivism taken as a method—an interest in harmony with Comte's repudiation of pure science and speculative philosophic effort.

But the devotion to fact for fact's sake has given rise in our Spanish-speaking countries to a situation in which science has been in a certain sense the victim of positivism. We have had an over-devotion to the technical truth at the expense of disinterested investigation. Something similar perhaps occurred in the United States. The effect here was not the same perhaps because in this country there was always a ready sense for the Absolute left open by the Puritan tradition, and this was able to feed a future philosophic sensibility. Among other reasons this explains why, contrary to what happened in Spanish America, the United States should have had such conspicuous figures as Emerson, James, Royce and Dewey—transcendental absolutism and pragmatism side by side. It may be mentioned in passing that the introduction of pragmatism into Argentina was itself the work of some positivists who insisted that pragmatism was the logical culmination of English empiricism, forgetting that we have here a school based on an essentially anthropocentric theory of knowledge and generally tied up with religious tendencies. May we not consider pragmatism as a peculiarly North American form of the classical German voluntarism—interpreted, to be sure, in pluralistic terms? Our positivists of pragmatic leanings have not searched so deep—they did not even do this with positive empiricism. This is evident from the fact that they did not get from Spencer more than the me-

chanical concept of evolution, and they did not learn from John Stuart Mill more than what they read in his *Logic*. They said nothing about the *Examination of Sir William Hamilton's Philosophy,* the metaphysical restlessness of which they did not appreciate.

As far as Comte is concerned, he did not do more than inspire a worship for positive reality which his followers in South America never stopped to analyze. Haeckel was more fortunate. It may be said that no university man, no member of a cultural society has neglected to read (in popular editions) *The Riddle of the Universe.* Haeckel has been given all the tributes of the stationery store. We have already said that Haeckel was one of the major prophets of South American thought. His followers devoted themselves—with great editorial shrewdness—to publishing all sorts of pseudo-scientific outlines of the master's thought, particularly on occasions of vague social reform movements and South American international troubles. In the last few years the homely opportunistic apologies of the Russian Revolution and the new-fangled movement of Spanish-Americanism have given additional opportunities for a large display of the same thing. In this way positivism attracted large groups of university men whose ideologic positions are determined by the exigencies of an economic or a political career.

Fortunately there are at the present time in Argentina evident symptoms of a new philosophic movement, set in operation by an increasing group of young university men who are coming to the philosophic field through the avenues of mathematics, biology, history, pure science, and also through philosophic studies directly. It is interesting to observe that this movement coincides with, if it is not the cause of, a gradual waning of the positivistic hold. It is a movement which has an authentic philosophic restlessness behind it, and which justifies many a hope for the fu-

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ture. It is true that in this coming generation there is a hasty shift from the positivistic creed to the idealistic doctrine by virtue of contagion from philosophic reactions in Europe. Those of us who in Argentina are responsible for the growth of philosophic activities are now fervently hoping that this shift to idealism may not be a mere movement of fashion, and that the visitations to the idealistic camp may prove beneficent in the minds of those who will sooner or later reach well-defined positions on grounds of earnest and reflective convictions.

Not that positivism is altogether gone for the present. But it tends to take the form in which it has been of some historical value in the country. We refer especially to its efficacy in dissolving many a trait of the traditional religious dogmatism. And in this respect present-day positivism goes hand in hand with other doctrines dating back to the eighteenth and early nineteenth centuries which continued to function in the heyday of the older positivism. It is, for instance, notorious that the individualistic rationalism of the French romantic and revolutionary liberalism insinuated itself in the social and political upheavals and constructive organization of the last century. The Argentine constitution—a brilliant specimen of social liberalism —is a legitimate child of that rationalism.

Aside from these political and social currents, the present outlook in South America is also determined by European thought. Among the European philosophers who are at present most influential in South America we should mention Renouvier, Boutroux, and Bergson among the French, and Croce and Gentile among the Italians. All of these have a considerable number of studious readers. A large group of students has felt the influence also of a distinguished Spanish thinker, Ortega Y. Gasset. Senor Gasset recently spent an entire year with us and gave his students an orientation towards Germanic depth, making

by-words for them of such names as Cohen, Rickert, Windelband, and others.

We are not under too great illusions regarding these contemporary influences. We see that these seeds often fall on the rocky ground of positivism and new-fangled views. And this is the problem, the problem of dilettantism in all its forms, that is faced in Argentina by the group of those earnest votaries of philosophy already mentioned. This group of students and teachers, their efforts often veiled in anonymity and shorn of tropical eloquence, constitute, in a sense, the welcoming committee for the European teachers who often visit our country.

This same group has been responsible for several activities which tend to lay the foundations for an incalculable future for philosophy in Argentina. One of the fruits of their work has been the recent organization of the Argentine Philosophic Society. This organization proposes to develop in Argentina some of the forms of philosophic devotion—periodical meetings, systematic publications, invitation of foreign philosophers, and the general co-ordination of the activities of students of philosophy with the activities of those devoted to pure science.

In conclusion, we may say that South American culture cannot be put in too stark a relief, especially if we take philosophy in its strict, technical sense. But to be aware of this does not imply a profession of pessimistic faith regarding Latin-American thought. We have seen that philosophy infiltrated its problems and solutions through the fissures of social and political life, long before there was any direct cultivation of philosophy in South America. And with the present efforts in the field, as well as with the encouragement given to philosophy by the government, there are many reasons for a decided optimism in regard to the future. These peoples, on account of their plethoric vitality and their unsurpassed racial and spiritual liberality, are

perhaps in the most fitting condition to achieve, within the very near future, a philosophic culture free from the traditional vices and capable of offering a vision of the universe and of human life that, in spite of its being an autochthonous growth, will have that which befits a real philosophy —a universal value.

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THE METAPHYSICS OF THE INSTRUMENT

PART ONE:

I

IN the frontispiece to one of Blake's prophetic poems, a colored print shows *The Ancient of Days* leaning from his supernal eminence and circumscribing with huge compasses the boundaries of the earth.[1] Whatever else of frenzied fancy this picture may symbolize, it illustrates a profound metaphysical meaning. For it may be given to a primal divinity to *create* subject matter with the very instruments which can only be intelligibly used or applied *within* that subject matter and which logically presuppose it. But man in his workaday practices—if not in his holiday wisdom—must content himself with guiding instruments which mark out and define distinctions in a universe of existence or discourse whose confines, if not irrevocably given, are at least tentatively assumed. The golden compasses in Blake's picture already presupposes the existence of the world, otherwise their efficacy in intelligent construction would be a sheer impossibility. Not even by poetic license can the world be created through a deft masonry of its derivative effects. This then is the first lesson—one suggested and enforced by the pots and pans of domestic economy as by the winged vagaries of a mystic poet. If a tool is a transformative agency it can neither beget nor de-

[1] *Europe* (1794). The theme was probably suggested by lines 224-231 in Book vii of Milton's *Paradise Lost*. See illustration.

vour the existences it modifies; and if mind is instrumental and efficient in a world scarred with stria of shifting things and events, it cannot have created that world.

II

The most general aspect of an instrument is its function as a sign; and like any general sign it possesses three distinct and fundamental references.

(a) It is an instrument in reference *to* some thought or intuition responsible for its construction and existence as a *tool,*—to some plan or mental blue-print which directs its exercise and measures and interprets its effects. Before it is set to work as a simple mechanical device or as part of a more complicated contrivance, a piece of wood or stone is a dull, uninformed thing significant only as an object to be noted and avoided.

(b) It is an instrument *for* some aggregate of entities or domain of relations in which it is to be applied. The instrument and the field of its use and activity, or literally speaking, its inquiry, are given together. To the technically initiated this teleological reference to a scientific existential stratum in which it operates, is borne on the face of every implement for which hand or mind reaches out. Genuine instruments are recognized as genuine questions because we know what kind of an answer in terms of things accomplished or possible of accomplishment, would be an answer to them. And just as a question is declared relevant when its presuppositions coincide with what is explicitly or implicitly taken for granted, so an instrument is regarded as relevant when its operating principle conforms to independently existing structural characters.

(c) It is an instrument *in respect* and *because of* its form, arrangement or structure. Its cut and stamp condition the extent and degree of its efficacy in securing a natural leverage in the loam or rock of subject matter. The

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" . . . . . and in his hand
He took the golden compasses, prepared
In God's eternal store, to circumscribe
This Universe, and all created things.
One foot he centred, and the other turned
Round through the vast profundity obscure,
And said, 'Thus far extend, thus far thy bounds;
This be thy just circumference, O World!' "

WILLIAM BLAKE

more pronounced outlines of its configuration bestow individuality of *type* while its more minute reticular profile confer singularity or relative uniqueness *in* the type. Thus a key, to exemplify the three references of an instrument, (a) exists for the purpose of rendering or denying access to certain spaces, powers and prospectively enjoyed things; (b), is efficient only insofar as there are locks and mechanisms which function in a determinate way; (c) and because we live in a world of different houses and purposes, is teethed in a distinctive pattern, so that fumbling at a door in the dark we may distinguish it by sight or touch from another.

These references generate a number of relations highly interesting for philosophical analysis. They show that nature instrumentalized is nature, so to speak, grown or brought to self-consciousness. If metaphysics then be regarded as an account of the generic traits of nature, if the categories which are the basic terms and elements of all scientific explanation and therefore themselves defy explanation, call rather for metaphysical *analysis* and description, then a 'theory of the instrument', whether the instrument be regarded as a scientific contrivance or a fundamental category, is not only relevant but highly essential to an understanding of the world we live in. For it not only reveals the more familiar surface features of existence but attests and certifies, if we follow its lead as a guiding principle, to the presence of other principles of organization or logical articulation with which the stuff of experience is thickly veined. That it does not find, however, the natural constitution of things locked fast in a complete and closed system is evidenced first, by its very existence—eloquent witness of disconnection and indeterminateness, second, by its concrete failures—proof positive that the cosmic dish is spiced with chance.

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Approaching and analyzing the instrument[2] as naively as we can, we shall find that even a cursory examination of its special cast and stuff is not altogether uninstructive. In addition to the quite general deduction that instruments indicate, lay open and close up various discontinuities in some situations, and predict, discover and construct systematic order and continuity in still other situations, more specific conclusions may be gathered concerning the segments and areas of existence thus recovered or revealed. This is true not only in the obvious sense that instruments enable us to dig deeper than we can reach or fly higher than we can see but more so in that the struggle and mode of activity of the instrument tell us something of the *compulsive characters* of the subject matter in which it is applied and in which it functions. Confront a man with a collection of screws and saws, chisels and levers, picks and scalpels. He does not need to be an expert to keep their uses clear and in the main to infer correctly the different spheres of those uses. He can pick out what will cut wood without splitting it, and what will scrape bone without cutting it. True, we may employ a nail-puller to extract a row of teeth as well as a row of nails but the anatomical similarity of a tooth imbedded in the gum and a nail held fast in a board can be laid down in advance by running our finger over the type of the instrument. A closer glance at two instruments of the same type used for different purposes will generally show mechanical differences. Without dragging in purpose completely at this point, we may say that mechanical re-

[2]I have not stopped to define what I mean by an instrument for this paper is really an attempt to give an extended definition of it. But what is said in it will cover Professor Dewey's account of a tool as "a thing used as an agency for some concluding event" (*Experience and Nature*, p. 128) as well as Reuleux's more technical definition of a machine as a "combination of resistant bodies so arranged that by their means the mechanical forces of nature can be compelled to do work accompanied by certain determinate motions". (*The Kinematics of Machines*, Eng. trans. by Kennedy, London, 1876, p. 35). For philosophic purposes either one is suitable, both being superior to Rankine's much quoted definition of machines as bodies "which transmit and modify motion and force" (*Manual and Machinery of Mill Work*, p. 1.)

finements are the earmarks of the discovery of existential niceties just as the sensitive eye and glass of the botanist can see more than the untutored eye of the rustic without impugning what the rustic *does* see. Instruments give us a clew to the material conditions of their efficacy and these conditions are as unavoidable and objective as the means we adopt to fulfill or modify them. There is no need to multiply illustrations. The razor-edged knife that slices leather and the dull blade that cuts the pages of a book tell the story. Interchange them in use and the blunt book-cutter will sooner find itself with a keen edge, acted upon *by* the leather, rather than succeed in acting *on* it; while the hair-fine edge will cut pages indeed but in a manner to make every booklover cry out at the mutilation.

That each material has its own idiom determining alike the generic character of what it can be made to represent as well as the kind of instruments which can be used upon it, is so evident in fine and industrial art that we may miss its import.[3] Among the primitives, the use of rigid fibre as a working material not only compelled different types of patterns and designs than those woven with delicate threads but compelled the use of different instruments as well. The repetition of certain designs in Arapaho bead work can be traced to the limitations of the material involved. The peculiar designs on the Maori canoe wrought with special appliances can be accounted for by the nature of the wood employed. The use of stone not only imposes rigidity in architectural designs but demands a method of construction different from the curved surface effects of brick. The skillful tailor turning from creton to shadow lace will change his needle as well as his stitch, and so on.

[3]W. H. Holmes in his various works has expressed the belief that most of the symbolism in primitive art can be explained by the presence of certain technical factors, chiefly working materials, which have limited free realistic representation and given definite casts to the processes of conventionalization. See especially "Textile Art in Relation to Form and Ornament, *Bureau of Ethnology, 6th Annual Report*, also article in *4th Annual Report*.

More apparent to a naive view will the instrument appear as revelatory of human purposes. And from this standpoint the inference from instrumental form to the features of the experienced situation taken as a whole, presents no formidable difficulties. The difference between the primitive stone hammer and the modern steam hammer has no essential counterpart in what they *crush* but rather in the difference of the degree of environmental *control* which their structures indicate. Our organized purposes, especially in their historic embodiments and deposits, must reveal to a certain extent the nature of the world. Not only in the formal sense that the world is such as to make those purposes possible of conception and realization, but in addition that our purposes are such as to make the world bare its characters and patiently admit of access and exploration.

Perhaps this empirical excursion has been a bit too prolonged. The point was to show that even in the world of ordinary social intercourse, particular instruments are taken not only as signs of instrumental function but as clues to subject matter as well. Bearing more overtly, however, upon the theme of this analysis will be a consideration of what the instrument *ueberhaupt*—the instrument as a *category*—implies for the realities and common subject matter of scientist and statesman, psychologist and man of affairs.

III

An instrument is a monument to a felt lack in existence. But it is more. It is a promise of its eventual check and elimination. It imports therefore an attempt to stabilize and fasten for future purposes the probable direction and intent of natural forces and define for physical reference the reliable substantive aspects of natural events. It proceeds to fuse intermittencies and dispersions in subject matter by

disclosing and suggesting certain fixities and continuities. Its successful operation is conditioned by the presence of certain inconvertible properties, persistent runs and irrepressible qualia which exist in their own right. The instrument is responsive to the potential meanings of things in their social effects. No matter how ultimate is its triumph in building highways over land and sea, it cannot thereby wipe out the order which it originally discovered—an order which as human beings, safely cradled in momentary security, we refer to as the fearful dissymetries of primal creation. A bridge spans a gulf or chasm without obliterating it; a lighthouse illumines the darkness without finally dispelling its dangers. Granted that the basic stuff and pervasive features of the world cannot be changed except by law or chance in the course of natural growth, admitted that nature cannot be transformed save by natural means, this only emphasizes the fact that natural means become *meanings,* glaring or recondite, when mind appears on the scene, and as meanings afford motor power and direction to those changes and transformations we are able to influence. Because the subject matter furnishes both the occasions and limits of its application, the instrument is free to function. Put differently, we may say that any subject matter may have a determinate order independent of god, man, instrumentation or demiurgic force. But when instruments are applied to that order it becomes a *significant* order. And although 'significance' is not the same as 'order' it can only be found *in* order.

Since without instruments there can be no *objectified* meanings, in a sense different from aimless desire and revery, it follows that the existence of certain structural lineaments which condition the possibility and presence of instruments, condition therefore the possibility and presence of the range of meanings. Where instruments are inapplicable or useless there meanings can never be found. In a

world of chaos and irresolvable ambiguities, instruments would be impossible—we could neither understand nor control; in a world of immutabilities and sclerotic characters, instruments would be unnecessary—we could understand but not control. Every tool, appliance or artifice recites a lesson on the nature of the world,—its cross-grained patterns of law and chance, its cosmic humors, its prevailing qualities of the *episodic* and *recurrent*. When instruments run smoothly, it is in virtue of ordered recurrences and sequences in what appears agglomerate or fluid; when they buckle and strike a snag then something *new* arrests our attention, be it no more than the dim perception of the limits of a tried method or a realization of the beginnings of a new problem. Hence, even if all application is risk and life itself a gamble, the existence of mechanical agencies proves that the cards of the universe are not stacked against us, that the game is on for a genuine stake and that there are some exciting hands to be played out before everything becomes extinct in a common doom.

The instrument is prima facie evidence of *latencies* and *potentialities* in the concrete contexts to which it is relevant. The recognition of these potentialities whether they be in the form of expressed insights or unavowed acknowledgments betrayed in our conduct and practices, is prelusive and anterior to the existence of the instrument itself, especially of that aspect which is called its formal design. The quickening and developing of these potentialities mark the fulfillment of its purpose. If subject matter is instinct with form in the given situation, the instrument makes these forms intelligible and significant not only by sloughing off the extraneous stuff concealing the precise contours, not only by serving as an index or sign of the human perspective which motived the selection and emphases of these forms, but by enabling these potential forms to perform their definite *functions* and *activities* which, metaphysically

speaking, *define* them as forms. Concretions in existence become, so to speak, animated presences because of a way of *acting*. The instrument, therefore, does not breathe life or a career into a bit of matter but gives it a chance to *attain* the organized life and activity of a career. There is a sound metaphysical intuition in the myths of primitive peoples in which the soul or spirit or career of a thing is expressed as the mode of its functioning. From this viewpoint a career is never finished as long as potentialities remain unawakened. The career of an instrument consists in making available, extending and liberalizing the careers of other things.

If the instrument has a life work, then in the same metonymous sense it has also a faith. For, as intimated above, the application of instruments beyond the immediate range of their use is attended with varying degrees of hazard. No two excavations face exactly similar difficulties, no two construction problems are exactly identical. It is a blessing then that manufacturers of tools and implements have not closely studied and taken to heart the writings of most modern logicians on induction, for when logic is divorced from existence, inductive inference if not meaningless, as at best an unjustifiable guess. But the faith of the instrument maker is not only restricted to confident trust in the power of his instrument to fathom unknown waters, to light upon nascent possibilities and unravel the matted tangle of things in critical conjunctures. It extends to the belief that in addition to effecting changes in the specific juxtapositions for which they were forged, instruments may successfully be applied to *new* subject matters and *new* problems whose kinship with the old have been unsuspected or overlooked. Often the idle application of old keys to new locks or new keys to old locks is followed by a yielding click. The history of invention is replete with illustrations. There is an inspiring moral as well as the color of poetry

and romance in the history of the ship, intended originally to navigate familiar waters, venturing into strange seas, finding new continents and oceans, becoming an Argonaut in search of new vistas and treasures for the hungry eyes of men. The instrument out of the hands of its maker is launched upon a veritable voyage of discovery.

The instrument marks a point at which human interest intersects the natural continuity of the historical process, converting the even flow and existent brutality of natural ends into multiply-implicative foci of rational enterprise. Endings that are natural and casual become ends that are practical and informed. Historical continuities are not thereby disrupted but differentiated and selected. They remain the structural supports in which particularities are embedded, and furnish the relations in terms of which those particulars are defined. But the instrument is the sole key to the incidence of the selection—a selection which although nesting in continuities has never been hatched by them.

The statement that the instrument presupposes a certain differentiation in both structure and function has further metaphysical consequences. It emphasizes the facts of immanent teleology and leads to a reaffirmation of the naturalistic doctrine of Aristotle purified of its ethical expression. It points to the presence of specific temporally coördinated organizations whose natural beginnings and ends make our choice and prejudices intelligible if not intelligent.[4] There must be some kind of *natural* selection before there can be *human* selection—and although that human selection is itself natural, it is not natural in respect to the things selected. Unless things desired were the outcome of processes whose stages were integral parts as well as essential conditions of them, we should only be able to dis-

[4]Cf. F. J. E. Woodbridge, *Purpose of History*, Chap. 2; John Dewey, *Experience and Nature*, Chap. 3.

tinguish the objects of desire by name while instrumental means and efforts at realizing them would be feeble and futile. Instrumentation can be most effective only when the continuities of natural growth as well as our interpretation of them reach certain stopping places or resting points in the *light* of which, *not* by the *power* of which, the direction of the movement seems purposeful, i. e., capable of developing into what it does develop. This manner of understanding purpose may appear naive and obvious, yet it is fundamentally significant in that there is no other way in which we can explain the relation of past and present, and tie the threads between what we know and what we expect. The instrument in all this is doubly selective. It seeks to actualize only those possibilities which are natural fulfillments of the state of affairs it begins with; and from among the possibilities which are *naturally* relevant, it selects those that are *humanly* relevant—fulfillments of human preferences. Man's judgments of preference, we have seen, are metaphysically ultimate since they can never affect the natural adaptation of means and ends, cause and effect in the objects preferred, nor can the value qualities of the judgments themselves be *derived* from the nature of the preferred objects. For if man is not the measure of all things neither are all things the measure of man.

Not only does the instrument presuppose continuity, it manifests in its own history a continuity. Having a growth, it has a genealogy, too. One can hardly appreciate the content of the vast armories of modern instruments save in their relation to earlier ancestral devices. The finest and most delicately adjusted mechanism has its crude forebears. The proverbial difficulty of the Patent Office in distinguishing between an improvement and an invention, besides indicating the imperceptibility that characterizes a kind of organic continuity, suggests in addition that certain types of instrumental function and operation have

remained comparatively invariant although expressed in varying and disparate materials. Dipping into empirical material again, it can be shown, for example, that the methods of percussion, grinding and pressure which the men of the stone age employed in putting an edge on their tools are essentially the same processes, refined and perfected, applied to metal today. The simple ring drill of the Nile dweller does not differ in principle from the modern electric diamond or carborundum drill. The swinging lever with which the Hindoo filled his water vessels grew into the beam engine just as earlier the "whorl" of baked clay became the principle of the spinning wheel. The principles which we inherit as distinct from their customary expression are often our most precious legacy from the past. They bind without enslaving and invite improvement without irresponsibility.

If we desire to trace this continuity still further back, it may not be too fantastic to regard man as a machinate mammal, as one writer did in *Erewhon*, and the physical machine as a supplementary limb. It cannot be denied that hands, eyes and ears serve as instruments for taking, seeing and hearing. Whenever they are ineffective we do not hesitate to transcend the natural limits of reach, audition and sight by introducing magnifying appliances of various sorts. And when these lenses and amplifiers present fragmentary testimony and data—what then? Without any break or sudden leap, thought or inference steps in as an instrument in piecing stray hints together, manipulating things, mentally reconstructing the situation in order to discover what is spatially beyond and temporally remote. Therefore what is true of all instruments is true of thought as an instrument.

A further consideration of the sense organ as an instrument is pertinent to a naturalistic theory of sense perception. The homogeneity of the sense receptors with the

character of the specified stimuli is revealed by the fact that actual defects in the organs of vision and hearing can be remedied only by constructing auxiliary devices in accordance with the laws of light and sound transmission. We cannot understand the structure and functional accommodation of the eyes without some knowledge of physical and geometrical optics. But we do not see these physical and mathematical laws with our eyes. Our visual apparatus does not choose its field of vision any more than the brain chooses the objects of thought. We use our eyes as we do our hands—to grope, to pry, to scan, to escape danger, to signal to a friend. Sense activity, like all behavior generally, is not inertly receptive in the presence of stimuli or explosively active in their absence. It is *interactive*.[5] The sense organs are instruments of action whose mechanism of operation depends on their structural differentiation, on the selective analysis of the organism and on the characters of the environing media. These are the primary *conditions* of sense activity, certainly not the objects of primary *perception*. But there may be psychic blindness and no organic defect in the structure of the eye or sudden change in the physical environment. We seem to see not with the eye only but with the eye as a part of the general nervous system. The eye is the organ of vision but vision is not in the eye.

The sense organs furnish stimuli. When these integrated stimuli are themselves stimuli to thinking they have acquired the status of signs, signals or indicators. Evoking and ordering these stimuli in conscious experimentation enables us to discover the physical and geometrical laws which condition the possibility of their very existence. Where mental operation eventuates in specific results, both the specific signs and mental operations acquire presumptive reliability and in the course of verification are taken as

[5] *Cf.* F. J. E. Woodbridge, *Journal of Philosophy*, Vol. 6, p. 452.

necessary guides. Logical habits are thus established which are dependent upon facts of natural connection. Here *in nuce* is the direct intimation of the three-fold reference of thinking as an instrument, to be developed in an article to follow.

Rehearsing a little at this point, we have seen than instrumentalities can never become transmuted into irrecoverable certainties, for their effective application depends upon definite objective environmental traits as well as upon the passing needs and purposes of those who live and react in that environment. Inasmuch as both factors are more or less unstable, reciprocally influenced and *temporally* conditioned, the *conditional* character of not only physical tools but also logical concepts follows of necessity. The history or evolution of the tool can never be the sole factor—or even an important one—in its continued operation.

The instrument is self-critical, correcting itself and making way for nicer and better adapted instances of its kind. It thereby proves itself different from many philosophers, for it follows instinctively and unswervingly the lead of its subject matter, and, instead of balking at recalcitrance, looks to its feelers and mechanisms or retraces its path to try a different tack. Recognizing and accepting the irreducible characters and distinctions in subject matter for what they are, instruments do not fritter away their energies in an attempt to subvert them or forswear tasks on the ground that nature is self-contradictory, whatever that may mean. Although an instrument is engaged in a continual attempt to reduce apparent natural incommensurability, it does not break its teeth on surds but gives up its place to another instrument which is so formed as to take that surd as a starting point and which by operating in rational construction invests it with a rational purport. If the instrument were articulate, it would insist that ultimately all scientific and metaphysical explanation is an ex-

haustive description of a natural fact, and that to keep on asking "why" indefinitely is more a pernicious verbal habit than a genuine intellectual or practical need. As proof, it would point to a case in its own history. So long as the lever for Aristotle was one of a number of "apories" or contradictions, being an instance in which "small things overcome great things, small weights heavy weights", its laws, which are all the explanation of it we want, could not possibly have been discovered, so that the science of statics would hardly have evolved beyond crude empirical beginnings.

Instruments effect changes and yet are themselves the effects of prior changes and intentions. Examined in the light of its relation to the processes of invention, discovery and manufacture, the *relative* validity of the distinction between the formal and material becomes apparent. And if the formal be identified with the functional and the material with the structural, then, regarded as events, say as Whitehead uses that term, these distinctions appear as differences in extent or degree of duration and intensity in general spatio-temporal operations. In this connection the traditional four causes or principles take on a different meaning than in the customary interpretation which regards them as certain supplementary forces leagued together to *produce* natural existences.[6] They stand forth rather as aspects and complexions of accomplished things —things as felt, things as understood, things as controlled and things as enjoyed. They are metaphysical distinctions —not ingredients of a magic recipe for begetting individual existences. The *efficient* principle of the instrument is evident in the motor power which impels it, and in its own mechanical impact which initiates movement, and transmits impetus. Its *formal* principle appears not only when viewed as a possible object of extravagant ecstasy

[6] *Cf.* G. Santayana, "The Secret of Aristotle" in *Dialogues in Limbo.*

as in the insistent emphasis of some modern aesthetic sects, but in the ideal or pattern tentatively and hypothetically entertained in the fevered mind of the inventor and yet dimly potential in the plasticity of subject matter. Its *material* aspect is reflected in its individuality, in the fact of its history, in the course of which it is subject to alteration, and in the compulsion it exercises on the ideals of construction and the methods of manufacture. The *final* principle of the instrument is represented in its business and behavior in the environment. Although these varied features of accomplished existences are indubitable and, if we will, absolute in the concrete schematized case, they do not necessarily imply the presence of unshifting, invariable ontological counterparts outside and above the movement of things. As canons of interpretation or explanation, these principles, although different, are equally true, providing the aspects of the situation to which they have reference are not confused. When I say that the stars are a source of inspiration, I am saying something about them which cannot be affected or deduced by a consideration of their internal structure; and when I am describing the planetary orbits I am not casting a horoscope.

An analysis of the instrument should lay the bugaboo of abstraction, for, if by that is meant the isolation of vector powers and components from a congeries of massed forces and elements, then it can be demonstrated that these disparaged abstractions turn the wheels in mill and factory and stir into motion the giant dynamos of our power plants, all of which enjoy the honorific status of being concrete. Natural sources of energy can only be made available by connecting them in some way with machines. Machines function properly only when they are so constructed that single forces act on the "driver". The required motion in a machine must always be one of an absolutely defined nature, and hence the mechanism must be

so organized that it abstracts from the concurrently operating forces always present. These forces acting naturally apart from human intervention give resultant motions indifferent to the needs of man as an animal, even though their wild play presents on occasions an interesting tableau to man as a spectator. As in the case of the field of intricate social relationships, only by artfully playing off one force against another do we finally get the desired result or motion. Indeed, to indicate the bearings of the argument without further development, many more entities are abstract, in the sense of being derived, induced or selected, than are commonly thought. All of those things which appear in the garb of shining immediacy, whether it be precious stones or metals, the sensations of traditional empiricism, or the sense data which have become the counters and money of contemporary philosophic exchange, are, as Professor Dewey has on so many occasions shown, endterms analyzed out for definite scientific purposes by means of physical or analytical instruments from impure, unrefined and loosely delimited segments of experience.[7] The problems which abstractions set are of a purely empirical nature, involved in the ways and means of attaining them and the purposes they express and satisfy. The question of *how* abstraction can be efficient, or what entities *correspond* to them, or what "degree of reality" they possess, can never arise until, hypnotized by their polished purity, the *methods* by which abstractions are reached are forgotten, their earthly origin renounced, and a Virgin Birth invoked to explain their existence.

IV

Much is being made of communication. Regarded as an unmediated exchange of meanings, it serves as a spring-

[7] *Cf. Essays in Experimental Logic*, Chap. I; *Experience and Nature*, Chap. 8.

board for a leap into the supernatural. Yet the indispensable role played by instruments in the communication of meanings is apparent not only in the highly developed apparatus through which we hear, see and write but in the more primitive medium of *telling* and *declaring*. I may not understand the sounds a man jabbers at me, and if I am in a far country his ambiguous gestures and grimaces may be more amusing than significant; but when he draws a knife —it is meaning enough. We then have a meaning in common even if it is only distrust. Or he may point to a ship, a cup or a ladder as a syntactical aid in understanding the situation and there is for the moment, a meeting of minds. Meanings on this primitive level are grasped through the intermediation of a physical sign. We thus enjoy the same idea when we partake of something in common. Things can only be *had* in common when they are *done* in common or, more accurately, when they prescribe or exact a common behavior, and only therefore because our environmental habits and activities are the same or similar can there be an interchange of meaning. Objects so placed that they can be used as instruments, invite and prompt certain acts. In collective labor, as in lifting a stone or pulling a rope, *words* become instruments used to render other instruments more effective. On the lowest plane of behavior, words are the shadows of meanings, instruments are their substance.

This may not be true of the wider reaches of mental activity carried on in words that have become stabilized signs of meaning. But the almost instinctive prejudice of the unsophisticated that intentions must be judged and justified by "good works" shows what store is set on "carrying out", on behavior. In the give and take of social life, instruments and instrumental activity are accepted as the guarantees of sincerity. Not that what is called inner experience is thereby discounted or denied. We read

one another's diaries convinced that we are not reading fairy tales even though we know perfectly well that they were written for someone else's eye—our friends' if we are modest, posterity's if we are vain. But as regards solving problematic situations, these confessional moments are in the nature of extended reveries. Now reveries tell us a great deal about the world in which they take shape—its lacks and disappointments, its surfeits and boredoms, just as the masks we wear to disguise ourselves are declarative of many things we would keep hidden. But if fancies and reveries are indirectly instructive, they are never directly reconstructive. This emphasis on *reconstruction* is the differentiating character of projects and schemes, for as programs of *re*forming and *re*acting trying to be physically efficient, they must seek out agencies, instrumental lieutenancies and causative powers of some kind. Where reveries are impulsive and show a forward reference, suggesting and subtly persuading that the world has been recast not only in thought but in fact, they become portents of danger and tragedy. Taken earnestly in its stark ultimacy revery grows frenzied and leads to paranoia or dementia. The instrument in situations of this sort plays the part of an indicator and regulator of individual and social sanity. It introduces measure, proportion and correction. Manipulated in subject matter it brings home conclusions about natural intractabilities as no words can. It runs up against an *order* which it must understand by taking thought of ways and means, or quit. It is a guage of the bearings of meanings, and often a sufficient condition for the creation of new ones. It implies measurement and therefore intelligibility.

As an apparatus for measurement the instrument serves as the safeguard and mainstay of objectivity. It links together a discontinuous series of momentary perspectives by supplying the terms which act as common denominators,

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and it ties successive or periodic descriptions to a common center of reference, generally the origin and starting point. It prescribes the direction which observations must follow, for upon it are registered the iron clad stipulations which the environment gradually discloses. It minimizes personal bias and causes the tertiary qualities which cluster around the nodal points set up by a kind of telescoping of objects, events and emotions, to evaporate. But it can only do this in virtue of the existence of an underlying order in the flow and vibration of things. Instruments for measuring time, whether it be the flow of sand in an hour glass or the periodic movements of heavenly bodies, imply an *order* of time; and an order intimately bound up with the movement of things, not with a succession of feelings and affections for which stretches of duration are never equal. Likewise if mechanical appliances enable us to control natural operations and to predict on the strength of what we control, this is possible only in so far forth as there is a *mechanical order* in nature. In the figure attributed to Galileo, nature can be geometrized only because, "The Book of Nature is written in characters of Geometry."[8]

The necessary condition for the existence and establishment of that definite order which lends itself to measurement is the presence of a transitive, asymmetrical relation between the objects or properties of any collection. Obviously not all properties can be measured. Everyone deserves the prize at the beauty contest and at Munchausen revivals. Those properties which can only be compared in respect to "more or less" without permitting accurate quantitative measurement are called intensive magnitudes, e. g.,

[8]"I truly believe," wrote Galileo at the close of his scientific career, "that nature is the book of philosophy—a book which is found perpetually open before our eyes but because it is written in characters different from those of our alphabet cannot be read by all. But the characters of this book are triangles, squares, circles, spheres, cones, pyramids and other mathematical figures quite proper to that kind of reading." *Oeuvres*, ed. Alberi, Vol. VII, p. 355; quoted by Meyerson, *La Déduction Relativiste*, p. 255.

happiness, wisdom, etc., and are much more numerous than extensive magnitudes such as weight, length, etc. The difference between two magnitudes of the latter kind is a magnitude of the same kind which is not true of differences between intensive magnitudes. Put differently, we may say that the measurable properties of a body (leaving aside properties which are examples of derived measurement) are those which are changed by combinations of similar bodies.[9] Since the numerical properties of any substance can be expressed in numerical symbols there must be some *physical* magnitude for which certain associative, distributive and commutative laws hold and which corresponds to the ordered relations expressed in the number series from which these laws are derived. The *conditions* which determine whether or not any property is measurable are, as enumerated by Campbell: "(1) two objects which are the same in respect of that property as some third object are the same as each other; (2) by adding objects successively we must be able to make a standard series one member of which will be the same in respect of the property as any other object we want to measure; (3) equals added to equals produce equal sums." In all cases the absence or presence of the conditions is discovered by the application of instruments; a yardstick for length, a balance for weight, a clock for time, a galvanometer, usually, for an electric current. These rules or laws, then, can only be established by *experiment* and cannot be deduced from *a priori* notions or assumed to hold for one set of properties on the ground that they hold for any other. The demonstration of their existence is at once the most important and most difficult task of experimental science. Without scientific measurement there could be no further *discovery* of laws, for only when the terms and numerals in which the results of meas-

[9] I follow very closely Campbell's treatment of measurement in his *Physics: The Elements*, Part II, the essential points of which are also summarized in pp. 109-151 of his *What is Science?*

urement are expressed themselves represent expressions of previous experimental laws, can they be taken as significant relations *controlling* deduction. And so measuring lengths with lengths, gauging weights with weights, and correlating numbers with numbers, we weigh the earth with instruments which are part of it and measure the universe with light rays which are emissions within it, drawing from weak reeds and blowpipes the tones of a measured harmony resident in the nature of things.

The foregoing considerations reinforce the analysis tentatively sketched at the outset. Every instrumental operation, whether it be scientific or artistic, industrial or personal, implies an order to which it owes its existence and an order in virtue of which its ends are realized. The instrument enables us, by utilizing these natural processes, arrangements and termini which antecede and provoke its existence, to create new ends which they suggest and sometimes compel; and to regard in moments of exuberance, the mechanics of transformation as the magic of mind.

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ALEXANDER'S METAPHYSIC OF SPACE-TIME (I)

HARDLY since the *Critique of Pure Reason* has a work on systematic philosophy appeared which is at once so easy to refute and so hard to dispose of as *Space Time and Deity.* Incidental contradictions are by no means unusual in metaphysics, but in these two cases there are fundamental conflicts of the most flagrant sort. And yet there have been few contributions to modern thought of greater significance than the critical philosophy, whose weaknesses and inconsistencies are the sport of any discerning undergraduate. It would be extravagant to argue that "Space-Time" will have as wide and various an influence as the "transcendental unity of apperception", but its importance will not be small, in our own time and beyond it.

Now contradictions are a genuine blemish to any philosophy, and a situation of this sort demands explanation. In the case of Kant that explanation has been fairly adequately given. His conclusions were in part the climax of one epoch of thought, in part the beginning of another. Daring and complete as was his rejection of old forms of belief, he was never able to free himself from the very ideas his own critical teaching did most to condemn. Like Moses, it was given to him to lead the way to a promised land, but he was too much entangled with the old to enter and possess it. This paper will attempt to suggest a similar interpretation of Alexander's theory. To vary the meta-

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phor, here is new wine in abundance, but our author has tried to store it in very old bottles indeed, and it is not surprising that there should be cracks. Perhaps we may yet hear of a "pre-relativist" Alexander to match the "pre-critical" Kant, and commentaries may be written to analyze and disentangle the conflicting tendencies in this great work. To such an effort the discussion which follows is offered as a prolegomena.

In general, two conflicting metaphysical theories are developed in *Space Time and Deity*. In the one, Space-Time is the absolute of absolutes. It is the stuff of which things are made, the matrix from which they develop, the medium in which they occur and are related. All its manifestations are conditioned by it, but it is not conditioned by them; it is logically and temporally prior to all finite beings.[1] It needs no other thing for its being or comprehension, indeed in the end there *is* no other thing. It is denied the title of substance only because that term implies a relation and the "One" Space-Time cannot be related to anything.[2] Contradictions cannot impugn its absolute validity; for itself is the source and criterion of reality and consistency.[3] All relations occur within it but only as parts of the one homogeneous medium, and no relation can ever transcend or condition it. All difference, all heterogeneity, fall within the all-embracing unity, to which any finite being, no matter how complex, is ultimately reducible without remainder.

The type of philosophy thus expressed is very old and very reputable. The Pythagoreans were its progenitors, so far as the peculiarly spatial reference is concerned, as Alexander announces,[4] and in more modern times there is

[1] *Space Time and Deity*, Vol. I, pp. 65, 341, etc. This work will be referred to hereafter as "*S. T. D.*"

[2] *S. T. D.*, I, p. 339.

[3] *S. T. D.*, I, pp. 206, 257 etc.

[4] *S. T. D.*, I, p. 227.

an obvious connection with Spinoza.[5] But the basic tendency is more pervasive than this, and has recently been amply illustrated by some very fashionable physical speculations. Meyerson indeed hails it as the necessary and ultimate form in which our reason expresses itself.[6] Thought seeks identities, it works toward the elimination of the variable and contingent, it seeks an absolute. And that absolute seems now to have been found in Space-Time, the absolute world of Minkowski and the misnamed relativists. This unitary being must be treated realistically; it is a genuine object whose constitution accounts for but does not in itself include the diversities of the world about us. So for Thales water was the unitary being, for Descartes extension played the part, and now for Eddington Space-Time *is* matter and no alien entity need be introduced. Even Einstein, after telling us that "the vague word space" has no physical meaning except as a set of quantitative correlations, now helps us to *picture* a curved space as if it were something to be looked at on its own account. Whatever concepts are found to be ultimate and unchanging for thought in a given epoch must perforce be treated as the unitary material for reality, the "One" which accounts for appearances, not as their structure but as their stuff and cause. If Space-Time is to go the way of "Force", "Extension" and the equally formal though less intelligible "Absolute Idea" of Hegel, it will at least stand in a great tradition. In physics at the moment there seems to be a feverish attempt to explain all possible physical properties of bodies in terms of some peculiarity or other of the space-time continuum. It is not unnatural that the philosopher should try the same experiment in dealing with his problems. Thus when Alexander "deduces" the categories from the structure of Space-Time and derives the cognitive

[5]Cf. Alexander's *Spinoza and Time*.
[6]Meyerson, *La Déduction Relativiste*, especially Chapter 5 and following.

relation from the same source he is not lacking in precedent, either physical or metaphysical.

Yet there is another view about Space-Time and its philosophical status, far too infrequently recognized in spite of Whitehead's great work on the subject. Space-Time is here a "locus of relational possibility", a strictly formal and relational affair. So far from being complete in itself or portraying an absolute world it is the witness directly or indirectly to a three-fold relativity. (a) Space-Time as a uniform and relational structure is relative to the concrete events it relates. To take it as complete in itself is to commit the "fallacy of misplaced concreteness",[1] to treat certain pervasive and physically important relations between events as though they constituted the events themselves. The fact that Space and Time are relative does not mean, as with Minkowski, that they are "shadows" of a whole equally abstract but less variable; it means that spatial and temporal relations may be variously abstracted from the concrete durations whose relations they express. Space-Time expresses the correlation of such differences, it is the fact that different motions, and hence different time series, are uniformly related. (b) Events themselves are reciprocally related to their structure. The spatio-temporal relations do really differentiate events themselves, and are not something additional to them. For events are the very apparent world around us, not something with a prior and exclusive nature of their own. And thus, while the world is not Space-Time, it is genuinely and indubitably spatio-temporal. These features belong to it relatively, but they do not genuinely belong to it. And (c) an ultimate heterogeneity must thus be recognized. No "bifurcation" which separates off appearances from reality can do justice to the infinite complexity of the real as thus

[1] *Science and the Modern World*, p. 72 and following. The chapter on "Abstraction" in the same work gives Whitehead's clearest statement of the relational character of Space-Time.

interrelated. The world really is full of a umber of things, and the reductive tendency which would subordinate them to a prior unity is no less destructive of Space-Time in its legitimate meaning than of qualitative differences. The whole, if Space-Time is to be our model, can only be a synthesis of differences and relative to them.

Now there is a sense in which Alexander would accept each of these propositions, incompatible as they seem to be with the absolutist view to which he is so clearly committed. (a) The relativity of the structural elements of Space-Time to something more concrete is clearly recognized. For Space and Time as "frameworks" are abstractions from concrete motion, and of such motion we learn that it "is not a succession of point-instants, but rather a point-instant is the limiting case of a motion."[8] These abstractions are said to be "blank" in themselves, and in subordinating them to something more substantial, Alexander thinks himself at one with Whitehead in their "common devotion to the concrete". (b) This relativity is the condition for the very existence of Space-Time, and only as differentiated by "lines of advance" or motions, is it intelligible. Hence relativity means more than the subordination of Space and Time to something more concrete, to something "primordial and given in experience", it means the relativity of the ultimate "stuff" to a relational system. For Space-Time does not exist just anyhow, it exists and is intelligible only as a system of perspectives, a highly differentiated and complicated system. This differentiation constitutes Space-Time as a continuum of "togetherness and distinctness" and only so is it metaphysically acceptable.[9] (c) Never was "bifurcation" more explicitly rejected. Not only is "total Space-Time" a synthesis of irreducibly different perspectives, but on the level of knowl-

[8] *S. T. D.*, I, p. 321.
[9] *S. T. D.*, I, p. 44 and following.

edge all appearances are to be accounted for objectively. Relative they are, but a spatio-temporal world includes and accepts such relativity as of its own nature. If knowing appears as a form of compresence, it is because compresence from the start has been characterized by just that sort of relativity which is essential for knowledge. Instead of a unitary being which annuls qualitative difference we have "the system of the many in which they are conserved not the vortex in which they are engulfed."[10]

Can these two views be reconciled? The contention of this paper is that they cannot, and that the paradoxes of *Space Time and Deity* follow from an unholy union of opposing doctrines which neither metaphysics nor eugenics can sanctify. The investigation covers three fields, "pure" Space-Time, the categories and the theory of knowledge. The argument is identical throughout. In each case we have an initial recognition by Alexander of all that is central in the case of relativism. But that is never enough. This relativity must always be accomodated within the limits of a preconceived absolute whose unity it flatly contradicts. Hence an attempt, inevitably a failure in the end, to combine such relativity with a type of unity which excludes it. The oddities of Space-Time and the major categories and the division of "knowledge" against itself, follow directly from this unhappy combination. Finally the discordant elements fall apart and the absolutist view triumphs, but only at the expense of all that was best and most original in the theory as a whole. That this result should be taken as all that Alexander's thought has to offer would be a real misfortune. In the course of his argument and especially in the theory of the categories, Alexander has made great contributions to contemporary metaphysics. If these are to be of permanent value, however, they must be defended against just this absolutism, equally

[10] *S. T. D.*, I, p. 347.

and disastrously characteristic of the hypothesis in general. Such a defence it is now our purpose to attempt.

I. The Structure of Space-Time.

Why *Space-Time?* Alexander has the unique distinction of presenting the first important metaphysical justification of such an entity. The argument proceeds from the nature of Space and Time themselves, not from conventions in regard to measurement, which Alexander regards as quite secondary and even misleading for philosophy.[1] And that argument is rooted and grounded in relativity. The intrinsic inadequacy of each entity in isolation is the proof of their connectedness. Space could not be what it actually is, a continuum of parts, if it were "mere" Space. Nor would "bare" Time be the empirical Time we know. The argument is altogether similar in principle to the idealistic justification of a "real will". Space and Time are only fully themselves in a context which negates their isolated self-sufficiency. And as surely as Space and Time are real, so surely must we trust in their connection, for without it they could not be real.[2]

The unfortunate reticence of our author as to the basis of such inadequacy has made this position appear less formidable than it really is. Space "as such" is without distinction of parts. But what about the mathematically immaculate continuum with which Mr. Russell and his followers have made us familiar and which is supposed to solve all the old antinomies about Space? Again, Time is held to be discontinuous because "present" excludes past and future and is incompatible with them. But, as Mr. Broad inquires,[3] why not treat the series of instants as a whole, like the notes in a melody? The reply, which Alexander has only suggested, is along the following lines.

[1] *S. T. D.*, I, p. 87 and following. It is misleading, of course, only so far as it suggests an ultimate relativity which Alexander by no means accepts.
[2] *S. T. D.*, I, p. 46 and following.

The continuum of points must have some connection with empirical extension. But extension itself is not resolvable into such points, there literally are no least and no greatest parts. For whole and part in extension are thoroughly relative; there is no whole not itself part of a wider extent, no part not itself a whole with reference to further subdivision. For the nature of extension is to be whole of parts and the parts of extension are themselves extended.

True enough, as Whitehead has shown, the requisite points can be derived from empirical data, but not from extension merely, as he now explicity recognizes.[4] "Cogredience", rest and motion, and the intersection of distinct time systems are requisite and the distinction is thus clearly spatio-temporal. When we are told that "Accordingly, position, planes, straight lines, parallelism, perpendicularity, and congruence are expressive of the mutual relations of alternative time-systems",[5] something of the empirical basis for Alexander's contention can be seen. Similarly, as McTaggart has shown, a completed time series must have some connection with the transition of future, present and past, or else it will lack any specifically temporal character. And yet the two are radically incompatible. If you take Time as a completed series of instants there is no transition within it, the elements are either all or none present in the same sense and the distinction of past and future does not exist. Nor is there a shadow of transition within your series. Yet if Time be not transition, change of relatedness, it is nothing.

The paradox has an obvious basis. In the case of both Space and Time there is a formal or relational and a material element. There is no element of concrete Space which is a mere limit, nor could extension be compounded

[3] *Mind*, N. S., Vol. 30, p. 35.
[4] In the supplementary notes to the second edition of *The Principles of Natural Knowledge.*
[5] *The Principle of Relativity*, p. 9.

of positions. So the series of instants does not change, while experienced duration is transition itself. Points do not extend, instants have no transition. Stated in this form the argument seems trivial, but it is not. For any attempt to telescope these contrasted elements, to say that Space just *is* a combination of points or that the series of instants is all there is to Time, will run into precisely these difficulties, as past antinomies show. Nor is the connection immediately obvious. Having distinguished points from extension and instants from duration, how are we to connect them? It will not do to omit either at the expense of the other, yet they are not immediately compatible. That they can be reconciled in a wider context, and especially in the relation of Space and Time to each other through motion, is a suggestion which Alexander shares with Whitehead and which the latter has verified in a most impressive fashion. Grounded upon a full acceptance, without bifurcation, of the empirical characters of extension and duration, supplemented by a search for the relational context in terms of which their formal structure can be understood, it offers an admirable starting-point for a theory of Space-Time.

And the further specification of this connection is equally promising. Having treated points and instants as abstractions, we are not to reach the concrete reality by putting them together, after the manner of Hegel's union of being and nothing. Rather Space-Time is primarily motion and the formal elements are derivative from it, not the reverse. A series of "sections" of Space, each occupying an instant of Time, is a convenient structure for certain purposes, but the concrete reality is to be thought of as a series or synthesis of historical phases. And such phases are *perspectives* "Space at any moment is full of memory and expectation",[6] and only real motions can secure this connectedness, motions which are not compounded of dis-

[6] *S. T. D.*, I, p. 71.

crete now's each complete in itself, but in which each element is integrally bound up with the past from which it has developed and the future which is beyond it.

Such perspectives are the essential nature of Space-Time, for in it the togetherness and distinctness which fell apart in Space and Time as such are genuinely united. Any perspective is unique, for it mirrors the whole Space-Time from a distinct center of reference; it is thoroughly relative to this particular context and locus. Yet the connectedness is no less genuine. For a perspective is determined by motion, it is on a line of advance, and its very relativity is the fact of its relatedness, of the thorough interaction or compresence which is the essence of Space-Time. "A perspective is merely the whole of Space-Time as it is related to a point-instant by virtue of the lines of connection between it and other point-instants."[7] Thus perspectives are "realities, and physical realities".[8] In a series of "sections", this essential relatedness is left out, for the unity of motion is dissolved into the formal deficiencies of Space and Time in their isolation. In a world of perspectives events are together, but not blankly, for each relates itself to the rest from its own standpoint, each enters the community of interactions from its own unique position. As Alexander puts it, each will have its own set of dates for events, it will be compresent *selectively,* with the whole of Space-Time. Again, in such a world events are diverse, but never disconnected, for their very diversity is itself a function of their relatedness. To be relative is to be related, and this relatedness is the structure of Space-Time.

This insistence upon perspectives is extremely significant. The notion became fashionable with the theory of relativity because it registered the fact that the relative does make a difference in the structure of Space and Time.

[7] *S. T. D.,* I, p. 77.
[8] *S. T. D.,* I, p. 92.

Nobody denies the fact of relativity, but the Newtonian theory had it that such relativity must simply be substracted to reach the reality. Absolute motion is that which remains when the effects of all relative motions have been eliminated. Perspectives do exist, but from the standpoint of objective and absolute reality they are irrelevant. On the contrary, the theory of Einstein shows that only in a context, with reference to a given standpoint, have Space and Time any physical meaning. And Alexander has carried the argument much further. If he is right, only as "stratified" in perspectives have these entities a *metaphysical* meaning. For only so is the requisite character of continuity achieved. And this relativity and diversity are ultimate. You cannot reach an absolute by omitting these diversities or "transcending" them. For then you are left with blank sections and, as our author rightly insists, "An integration of such sections does not represent the history of the world. Time would cease to be a duration and would be nothing but a now, for the different nows would have no continuity."[9] Space-Time, then, requires this specific differentiation in order to exist, and if this be denied the whole hypothesis collapses. The repetition of this fact may perhaps be excused, in view of the part it is to play in all that follows.

Finally we must notice the specific manner of the salvation of Space and Time. Time distinguishes Space because *in a perspective* the points of Space are variously dated. Extension is no longer the final fact, but motion, and such motion involves temporal differentiation not only within its own sequent phases, but in reference to other motion. Alexander's favorite instance is the velocity of light and the relativity in dating consequent upon the discovery that light moves. Obviously, from a given center, points will be variously dated if allowance is made for the

[9] *S. T. D.*, I, p. 67.

time it has taken a "message" from them to reach the center of reference. Interaction of this sort, the giving and receiving of news, does in fact establish such a variety of dating, once it is recognized that the standard of reckoning is determined by the specific relations of the center of reference to the events in question. Thus the diversity in relations of different motions or lines of advance is the salvation of Space, whose points are differentiated accordingly.

This same connection comes to the rescue of Time. If an instant were absolute, if it contained no reference to past and future there could be no connection intrinsically. But *in a perspective* which is spatio-temporal, the present is intrinsically determined by its past and future, that is, by the motion of which it forms a part. The continuity of motion from which it is an abstraction, saves Time, just as the diversity of relatedness rescues Space. And this continuity is reflected in the fact that a perspective is determined by past and future as well as present and hence Space is full of memory and expectation. The dependence is reciprocal but not, in this form, vicious. For each entity depends not upon the other as an equally barren abstraction but upon the concrete context in which each finds its meaning and justification. Hence our three-fold relativity, now recognized to be as ultimate as Space-Time itself. (a) The relativity of Space and Time as formal to the empirical reality whose essence is motion, (b) the relativity of spatio-temporal reality as a whole to the diverse perspectives through which alone it can be accepted, (c) the connectedness of all events within the whole in virtue of the concrete interactions of which perspectives give us the structure. The solution, so stated, is by no means as definite as could be desired but, in principle, it meets the absolutist difficulty which was its ***raison d'etre.***

Yet all this is somewhat less than half the story and,

taken by itself, quite misrepresents the total theory. It has seemed essential to isolate it because it does present an intelligible and important theory upon which Alexander certainly does insist and without which his hypothesis could not stand for a moment. But absolutism will out, and each of the principles thus for enunciated is quite specifically contradicted in the sequel. The manner of this contradiction and its consequences must now claim our attention.

Summed up in one sentence, the Alexandrian account rests upon an initial and exclusive absolutism which comes perilously near to making nonsense of all that has thus far been asserted. It appears to eliminate absolute Space and Time by the introduction of perspectives, but it never for a moment does so. The relativity of Space is never even contemplated, that of Time, very oddly introduced, is completely superseded. Motion is prior to Space and Time, we have heard; now motion proves to be just a change in date of spatial positions. Date and place depend on interaction, but such interaction consists in the odd peregrinations of Time through pure Space. Points save Time but are themselves permanent only as recurrent in Time. "In order that Time should linger, Space must recur."[10] All that our author has offered with one hand he withdraws with the other. And the result is this. "Time and Space in their ancient pure reality remain as the framework of history, and the new doctrine (relativity) is a new doctrine of their sensible measures."[11] Or this, "The universal Time is arrived at by depersonalizing the perspective times of many persons, that is, correcting the illusions to which they are subject."[12]

First, consider the fate of Motion, upon which the whole theory was based. If Motion is itself a name for concrete

[10] *S. T. D.*, I, p. 49.
[11] *S. T. D.*, I, p. 91.
[12] *S. T. D.*, II, p. 232.

motions, a function of events in their dynamic connections, then the spatio-temporal connections derivative therefrom are ultimately relative. Space-Time is the structure *of* something extrinsic, it is form but not stuff. In *absolute* Space-Time, this must not be. For while Space and Time require each other, they cannot require anything further; in their combination they are ultimate. So capitalized "Motion" is merely another name for the fact that this self-sufficient continuum of points and instants is considerably scrambled within itself. Points occur at various dates, and vice versa, and this combination *is* Motion, the concrete entity from which Space and Time are abstractions. "Now this is the meaning of motion. Points do not move in the system of points but they change their time coefficients."[13] And again, "The meaning of motion is—that the time of a point ceases to be present and the present is transferred to another point continuous with it."[14] And of material bodies: "their motion merely means that the time-coefficients of their spatial outlines change."[15]

The absolute structure of Space-Time is thus clear. Absolute Space is presupposed from the outset. The meaning of "point" is presupposed, and, as we have just seen, the relations of points to each other never change. These points are "occupied" by instants, and variously occupied, and this is the meaning of relativity, that the points in Space are traversed by distinct lines of advance, which are movements *of* Time itself. It is the series of instants itself that moves, and what is differentiated is not concrete extensions but the "system of points" whose ultimacy and spatial distinctness is presupposed from the start. The concrete reality, the ultimate substance[16] is a point-instant, or "pure event" which is the occurrence of a point at an

[13] *S. T. D.*, II, p. 232.
[14] *S. T. D.*, I, p. 272.
[15] *S. T. D.*, I, p. 65.
[16] *S. T. D.*, I, p. 272 and following.

instant and the occupation by an instant of a point.[17] It is the *point* that occurs, the instant that occupies a place. The fusion of abstractions is complete, pure form and pure stuff coincide and are absolute. Space-Time is not relative to Motion for it *is* Motion. Internal vagaries there are, but they are all family affairs. Points are comprehensible as soon as we know that instants occupy them, and instants are no longer abstract because they have somewhere to occur. One abstraction would be ruinous, as Alexander insists, but given two abstractions the puzzle is solved. Points must be the places *of* something, and so indeed they are, of instants. Hence they play form for the substantial occupancy of Time. Again Time demands the occurrence of something and here it is, the point. Space is the substantial occurrent, Time the structure. And thus is accomplished that union of form and stuff, of relations and things related, which is the heart and center of absolutism. As Hegel loved to remark, one hand washes the other. The combination *is* Motion and hence both Space and Time are relative to nothing but their own combination, and the ostensible results of relativism are reconciled and subordinated to the absolutes of Newton, whose "ancient pure reality" remains unimpugned.

The consequences are immediate and devasting, and our author has developed them with relentless accuracy. The unity of identity and diversity has been accomplished by making the absolute diverse from itself, and this is a contradiction. That Time and Space should be variously determined in distinct contexts is one thing, the diversity is then explained by a plurality of relationships. But when these relations are solidified into things themselves,

[17] *S. T. D.*, I, p. 48. "It follows that there is no instant of time without a position in space and no point of space without an instant of time. I shall say that a point *occurs* at an instant and that an instant *occupies* a point. There are no such things as points or instants by themselves. There are only point-instants or *pure events*."

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when form is merged with stuff, the very being of such entities is at war with itself, as will be seen.

Consider Time. It is an order of instants, a one dimensional affair. It is now suggested that there may be a number of such series, but the order within each is not contested. But for Alexander, Time is more than a serial order. it is a set of occupants which are situated in Space in the same literal fashion as tables or houses. Hence the embarrassing task of relating instants to each other in respect of their spatial position, a task which our author by no means shirks. (a) We are told that in this *meta-physical aspect,* Time does not constitute an additional dimension, as the relativists suppose. "Time, with its distinctive features corresponds to the three dimensions of Space, and in a manner of speech, Time does with its one dimensional order cover and embrace the three dimensions of Space, and is not additional to them. To use a violent phrase, it is spatially, not temporally voluminous."[18] A one dimensional order could not be voluminous in its own right, to be sure. The violence is clearer when one says, "Time is spatially, not temporally ordered." The reason is plain. Occupants of Space do not possess dimensions of their own but those of the positions they occupy. A table is spatially, not "tabularly" extended. To say that a series of instants is not an additional order to the three dimensions of Space seems violent indeed. The boldest relativists seem to believe that the temporal dimension is not different in character from those of Space, but they recognize it as additional as a matter of course. But here Time is no longer form but stuff, a set of occupants, not a series of positions and hence "Metaphysically—it is not a fourth

[18] *S. T. D.*, I, p. 59.

dimension of the universe but repeats the other three."[19]

The manner of this connection is further set forth in the baffling demonstrations of the interdependence of temporal relatedness and spatial dimensions. In themselves, these arguments are almost incomprehensible. Considering the status of Time on this theory, they are quite disastrously clear. It is assumed throughout that instants, like any other occupants, derive their relations from the positions they occupy. Hence their relation cannot be irreversible, transitive and the like, unless their spatial positions warrant it. Take irreversibility. In one dimension no instant could occur at more than one place without being at a different position and, so far as can be seen, that repetition might place it actually after (in front of) its other spatial position. And then it might perfectly well, in this new position be after (in front of) an instant which it was before (behind) in the other position. And then A, being after B, would also be before it, and the temporal order would be irreversible. Q. E. D. All this is made plausible by the fact that the same line is used for spatial and temporal positions, "we take the line ab (the series of points)—to represent the time line as well"[20] and thus in fact the position of an instant is that of the point it occupies. The addition of a second dimension is quite vain. It is supposed to save the situation because the instant can occupy a point here without being either before or after (spatially) its spatial position in the first dimension. And since the spatial dimensions are independent, the contradiction is solved. It is before in one relation, after in another. But either the second dimension is *temporally* independent of the first or it is not. It must be if we are to

[19] *S. T. D.*, I, p. 59. In his reply to Broad, Alexander seems to repent this assertion. He still insists upon the demonstrations of the connections of Time with the three dimensions of Space, and these would be meaningless without it. Hence the general position is not altered, though there is some natural uneasiness as to its consequences.

[20] *S. T. D.*, I, p. 52.

follow out the identity of spatial and temporal relations on which the whole argument is based. And then it will be simply irrelevant to the first and that series will lack irreversibility as much as ever, while we will have the distressing notion of right and left time upon our hands. If it is not, then an additional spatial dimension will not clear up the fact of temporal sequence in any sense. In either case this fact remains. If the order of Time is made into an a priori stuff occupying Space and deriving its relations from positions occupied, then no instant can occur at more than one point without being either before or after itself, which flatly contradicts its own relational character.

Without a third dimension Time would not be transitive. It might change its direction. "The movement of Time might be pendular, and a movement might be from A to B and from B to C and both irreversible, but that from B to C might be in the opposite direction in spatial representation. It would not in that case necessarily be true that if A is before B and B before C, A is also before C."[21] The dilemma here is plain. The pendulum has undoubtedly swung back in Space, but just as clearly that does not affect our reckoning that its return is later than its departure. If it did a pendulum clock would be a very poor means for keeping time. Yet if temporal relations are those of positions in Space, this conclusion is unavoidable. We are in the sad predicament of being unable to return to our offices tomorrow morning without thereby returning to yesterday. The thing simply will not do. There is a temporal *order* of events, and the positions in that order cannot be substantives occupying positions in and deriving their relational characters from another order with incompatible characters.

To sum up. (a) There are three dimensions of Space and only one of Time. Hence the relations of instants in

[21] *S. T. D.*, I, p. 51. Repeated in substance in I, pp. 54.-55.

different spatial dimensions is very odd indeed. Alexander seems to contemplate a series of instants swerving about in three dimensions, for lines of advance, which are the movements of Time, are spoken of taking place "in all directions" and being "not necessarily straight".[22] And this is not plausible. That Time and Space should vary together in different contexts, or rather that positions should be variously determined in different relations, is one thing; that independent sets of instants should run about in an identical Space and even collide[23] is quite another. (b) A line that does duty for both Space and Time gives a one-one correlation of points and instants. This contradicts the empirical fact that an instant may be common to a considerable spatial extent without prejudice to its temporal relations. (c) The order of instants is irreversible, the order of points is not. To identify the two is to secure a series with contradictory characters, to refuse to identify them is to reject that fusion of distinct relations in an absolute stuff which is the basis of this theory. Substantialized Time has become diverse from itself.

With Space we can be more brief. As we have seen, the role of Time here is to differentiate positions. For Whitehead this would mean that there is a plurality of time series, each with its own set of coexistent spaces, and that points within a given space have different positions in virtue of the relations of this time series to others through relative motion. But this depends upon an ultimate plurality which Alexander will by no means admit. In spite of all that has been said about perspectives, all times must belong to a single time series. All times are parts of the "One Time" in the same simple sense in which instants are part of a single series. In reply to Bradley, the hypothesis

[22] *S. T. D.*, I, pp. 69-70.

[23] *S. T. D.*, I, p. 63. This is only an anology, to be sure, but Alexander does not appear to regard this particular consequence as a defect.

of distinct time series is categorically denied. "Thus when Time is regarded as it must be spatially, there are no Times which do not belong to that one Time, belonging as they do to the one Space."[24] In this container all differences are together, like marbles in a box, and thus there is but one Time. How then provide for the requisite differentiation? One space cannot be diverse in date from another space, for there is but one, nor can this one be differentiated into a series of coexistent spaces. That was the notion of a section, abandoned at the outset. Space "now" must be temporally differentiated *within itself*, not in extrinsic relations, for it has no such relations. If points are made distinct by instants, then either there is no distinction with a "momentary" space, or that momentary space is, *within itself* diversely dated. The latter alternative is chosen.

From a given instant of reference, Space will be at different dates, since if "Now" be the given instant, most of the events whose influence makes the center "compresent" with them, are not "now" but past or future. My perspective is determined by interaction and interaction takes time. Hence compresence does not mean simultaneity but a variety of dates. The best instance is that of the star Sirius.

"What I see is an event which happened nine years ago at the place where I see it—and heaven knows what may have happened to Sirius betwen the date of what I see and now when I see him." So much for past points "now", what of the future? "I mean by thinking of Sirius and his position in the future that there is a system of transactions now begun which will end by enabling me to see Sirius then. Generally, the point c is future to the point o in that transactions in Space-Time are set up which will enable me at some future time to date c as contemporary with my present moment."[25] Now it is fairly plain that

[24] *S. T. D.*, II, p. 235.
[25] *S. T. D.*, I, pp. 70-71.

something is wrong here. I now see Sirius as past, that is, as *not* contemporary with my act of seeing it. I think of it as future in that transactions are "now" set going that will enable me to date it as contemporary in the future. But, according to the argument, I will not date it as contemporary then but as nine years past, while the Sirius that will then be contemporary on that system of reckoning will be dated as nine years in the future. We are in the position of Alice in Wonderland whose wages from the Red Queen were to be jam yesterday and jam tomorrow, but never jam today. Each reckoning depends upon our taking the other as "now" and then denying it in the sequel. And thus indeed Space is variously dated. Alexander has urged us to be serious with Time, but it does appear that in this instance he is refusing to be serious with simultaneity, and with Sirius.

Nor is this a special instance. Some time discrepancy would hold for even the most contiguous objects. Unless such discrepancy existed the requisite distinction would be lacking, but to maintain it we must accept throughout the very confusion here noticed. This hypothesis must be clearly distinguished from that of the relativist. For the latter a perspective expresses a diversity of relatedness in that all perspectives do not fit together into a unique and absolute whole. There is then a diversity *between* perspectives, but within each a single standard is employed. Not so here. The relation between perspectives must be simple and unitary, they must fall within the one and absolute Space and thus achieve temporal unity. Yet the original hypothesis demanded diversity, hence it is sandwiched into the perspectives themselves. A double meaning of presentness is telescoped into a given system of reckoning and then both meanings are ignored so that we may have "past" and "future" *now*. Relativity is here not a relational unity of diverse standpoints but a diversity of

standpoints holding directly within a substantial unity. Sirius is past and future now, but only past if never future in the perspective and only future if never past, and only called either when the coexistence of the star on one reckoning or the other is assumed from the start. And this coexistence is just what was denied by the supposed diversity of dates.

Finally, consider Motion. Since all such motion is nothing but temporal progression, "a forward dating of points of Space in Time", we have the embarassing problem of the relation of movements *in* Time on our hands. One would normally suppose that temporal progress was consistent with rest in Space, so that one might remain in the same place and still grow older. Not so here. "Rest, in fact, appears to be purely relative and to have no real existence. Every place has its time-coefficient and is the seat of motion. For if any point in space retained its time, this would dislocate the whole system of lines of advance within Space-Time, a point being only a point on such a line."[26] *If any point retained its time,* that is precisely what rest must mean if any motion is identified with temporal progression. Hence a new triumph for the tortoise in the now familiar contest with Achilles. For it need not even leave the starting point, provided that it keeps the same time as its competitor it will move in precisely the same sense. Its position will have later dates, and that is motion. Achilles could only outdistance his opponent by beating him to tomorrow or next week. And in that case there could be no temporal comparison. Again the same moral. If you substantialize the order of Time into the motion it measures it is no longer a standard. Unless the motions in the contest were different there would not be a race, unless there were some common standard, whether temporal or spatio-temporal, there could not be a verdict. By

[26] *S. T. D.*, I, p. 84.

telescoping the two into a single entity your absolute becomes once more identical in precisely the sense in which it was different. And that is self-contradictory. Again the relativist position is quite distinct. That the same motion may *in different contexts* function either as purely temporal or as motion in Space is one thing. That it is as such and in itself both at once is quite another.

The continuity involved in motion was to be the salvation of Space and Time. We must now ask what precisely it amounts to. Are not point-instants as separate and self-complete as instants themselves? What does their combination add? So long as we took motion as something more than a mere combination of points and instants, a concrete unity for which they furnished the relational structure, we seemed to have an answer. Now that interpretation has failed us, we must look elsewhere. Alexander has three suggestions, and we will consider them in order.

(a) The separateness of point-instants is said to be "ideal". "Point-instants are real but their separateness from one another is conceptual. They are in fact the elements of motion and in their reality are inseparable from the universe of motion; they are elements in a continuum. They must not be regarded as physical elements like the electrons, but as metaphysical elements, as being elementary constituents of Space-Time or Motion. Real they are, but if the apparent paradox be pardoned, they are ideal realities."[27] Now this is obviously futile. If there were room on Alexander's theory for the distinction between ideal and material, if to be ideally separate were different from being existentially separate, then the point-instants might be separate as positions, as relational elements, without thereby compromising the continuity of the concrete motion. But these ideal realities are really the stuff and material of the motions in question and the dis-

[27] *S. T. D.*, I, p. 325.

tinction introduced by Alexander contradicts itself, as the following quotation indicates. "It (the point-instant) is an ideal, *not an actual movement,* and just for that reason *it is the actual elementary existent* and is real just in virtue of its ideal character."[28] And, in reply to Broad's criticism[29] Alexander adds that "conceptual" means merely "reached by concepts" and hence, on this realistic theory, has nothing to do with the actual status of the point-instant. If they are ideally separate, point-instants are really separate, and their conceptual isolation can only register an antecedent real isolation. The problem is hardly solved by this device.

(b) A second line of argument is more important. There must be some element of transition *within the point-instant* if it is of the stuff of reality, and our author attempts to put it there by the marriage of point and instant. "The point is never at rest but only a transition in a motion. Now it is this restlessness of the point which is expressed in terms of space itself by the criteria of continuity which the mathematician adopts in order to free his points from their apparent isolation and self-dependence."[30] And hence, "A point-instant is by its very nature a movement, not something statical. It is an ideal, not an actual movement", etc. Hence we need not go beyond the point-instant itself to reach our goal. It is the "limiting" form of a movement, to be sure, a movement at its limit, as Alexander often says, but here the limit and the concrete motion are of the same stuff, and the limit is itself an "ideal" movement.

Mr. Broad has suggested the final criticism of this solution.[31] A point-instant as a limit lies not on one line of advance but on many which intersect in it. Now these mo-

[28] *S. T. D.,* I, p. 272.
[29] *Mind,* N. S. 30, p. 415.
[30] *S. T. D.,* I, p. 148.
[31] *Mind,* N. S., 30, p. 32.

tions differ *inter se* in their directions and yet this point-instant is common to them all. If it is veritably "only a transition in a motion" it must be several distinct transitions in quite different motions and its inherent restlessness will amount to nothing less than ague. Again, even an ideal motion must have at least an ideal velocity, and a limit or intersection will not possess it. It is the same story once more. You simply cannot telescope form and matter in this fashion. As a position, as a limit if you will, the point-instant is common to many motions; turn it into a concrete motion on its own account and you are combining contradictory characters. Your position is not a motion, and your motion, even as ideal, could not fill the functions of a position.

(c) The final answer is extremely significant. In his reply to Broad, Alexander faces the difficulty quite frankly. "How then, it is asked, can there be several motions intersecting at an event-particle (Broad's substitute term for point-instant) as the perspective notion demands? Is not that to imagine an event-particle which is the limit of a motion having several velocities at once? But is not Mr. Broad in finding this difficulty taking an event-particle to be not a limit but an infinitesmal, a very small duration. Velocity can only arise out of the transition between one event-particle and another—I must not say the next. That being so, there is no more reason why motions should not intersect in the same event-particle than why lines of different direction should not intersect in a point."[32] The transition that was to have saved the event-particle has now gone clean out of it, for, once more, even an ideal motion would need an ideal duration. The transition is now "between" event-particles, and only there can the characteristic properties of motion such as velocity appear. And this is quite ruinous. The very essence of Alexander's theory

[32] *Ibid.*, p. 419.

is that the relation between spatio-temporal elements is of precisely the same character or stuff as the terms themselves. "Any relation between moments of Time is then a piece of Time itself, and duration is not a relation of the timeless but of the timeful, and while duration is made up of the instants it connects, these instants are connected by duration. For the relation and the terms are of the same stuff."[33]

This should settle the matter. The velocity that only appears in the transition from one point-instant to another does not appear at all, for that transition is itself a point-instant or set of them. So long as we distinguished point-instants from duration, so long as relations were of a distinct and autonomous nature that escape was possible. But now the terms and the relations are a single stuff and the terms are limits that are not even very small durations. This last appeal is very instructive in relation to the whole argument, summing up as it does the central and final defect of the absolutist scheme. In his chapter on "Relations in Space and Time" Alexander rules out the relational theory as ultimately valid because in Space, and also presumably in Space-Time, relations are homogeneous with their terms, and those terms are of spatio-temporal stuff. The attempt to define relation autonomously fails because, according to our author, you must use the term "between", which is itself a relation. Thus relation does not justify itself but must be grounded in Space-Time as stuff, in whose "crude continuity" the notion of betweenness has its basis and justification. Relations depend upon the absolute Space-Time, not the reverse. That the attempt to vindicate this crude continuity should here force Alexander to appeal to this very relation of betweenness to introduce the requisite continuity *not* discoverable in the terms is at least poetic justic.

[33] *S. T. D.*, I, p. 260.

To sum up. Of the three phases of relativity initially noticed, not one remains. The fusion of form and matter, of structure and stuff, into a contradictory absolute has been our theme throughout. Only by superposing their differences and asserting simply those characters which really hold only in specified and distinct relations was the synthesis possible at all. And we have seen its consequences. Again, the system of perspectives has turned out to imply only an odd set of adventures for pure Time, its purity all uncompromised by the irregularity of its spatial relations, in absolute Space. Points and instants do not arise from the relations of perspectives, rather perspectives are the by-products of the liaison of points and instants. The full extent of this subordination of perspectives will be the central topic when we reach the theory of knowledge. Finally the complete interconnection of events has disappeared. For the ultimate "pure events" are point-instants and we have found no legitimate and allowable connection in or between them. One cannot subordinate relations and still have an ultimate relatedness.

In conclusion it must be repeated that these difficulties are not insisted upon for their own sake. It is the very adequacy of Alexander's account that lays it open to criticism. A less honest thinker would have suppressed the actual diversity of things; here it is frankly faced. The ultimate "self-diremption" of the hypothesis is a condemnation of its narrow structure, but it is no less a tribute to the initial insight, whose genuine fruitfulness, as its consequences so plainly indicate, is not to be confined within the limits of an absolute metaphysic.

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IS POLITICS A BRANCH OF ETHICS?

IT is an opinion which can usually be stated without fear of challenge from philosophers, whether idealist or pragmatist, that Politics and Ethics are two aspects of the same subject. "I hold to the simple view", remarks Professor Laski, "that Politics is a branch of Ethics." John Dewey, in protest against "abstractions"[1] has insisted as much as did Bosanquet,[2] that the two studies cannot be conducted apart. Thirty years ago Sidgwick said that the study of Politics is concerned with the system of relations which *ought* to be established among the persons govern-

[1]Professor Dewey, on the one hand, denounces a theory, e. g. of economics which involves an abstract consideration and hence (he thinks) falsification of human conduct, and, again, (*Human Nature and Conduct*, 1922, p. 320) attacks the doctrine of a "sharp line between moral conduct and a larger region of non-moral conduct which is a matter of expediency, shrewdness, success or manners". Of course, he does this not in the name of any absolute ethic, dominating the field of expedient means to the stultification of any study of technique, but in the name of a single technical 'science of human nature'. We need not here follow him into this doctrine or inquire what would be the nature of this science of conduct in a "big, booming, buzzing world" of affairs, or what would be its relation to the discussion of the consistency of values. We are merely concerned to emphasize the point which Professor Dewey himself makes elsewhere to the effect that the development of the sciences dates from the time when "science ceased to be identified with appreciative contemplation of noble and ideal objects" (*Experience and Nature*, 1926, p. 150; also *Human Nature and Conduct*, p. 277) or even, let us add, with the problem of right conduct. When Professor Dewey would make war on a certain treatment of the problem of the rightness of conduct, the business of the student of politics is, in the words of the Psalmist, to "keep his soul as a weaned babe" and "mind not high matters".

[2]B. Bosanquet, *Philosophical Theory of the State*, 1926, p. 47. It will, however, be noted that Dr. Bosanquet in carefully guarded language distinguishes the philosophical from the natural science approach, which he regards as complementary. The emphasis is upon the study of politics from the side of ethics, the hope is that "sociological psychology will not remain wholly 'positive' and 'impartial'," but the distinction is admitted as actual if not approved cordially as legitimate.

ing and between them and the governed.[3] This phrase itself serves to illustrate an ambiguity, which runs through all discussions of this topic. Sidgwick, in a later passage,[4] quotes with approval a remark of Bain to the effect that politics deals with the structure and functions of government as they must be. And most moral philosophers are prepared to admit that the Aristotelian method, in so far as it studies what *does* happen and what 'naturally will happen', is more appropriate to Politics than that Platonic construction of Utopias, which is guided only by the logic of the argument and not by the practicability of the conclusion. There still, however, remains the doubt whether, in discussing the best practicable constitution, we are to be satisfied merely with intrinsic evidence of practicability or are to introduce an extrinsic pattern of what ought to be, to which what is will partially approximate.

The issue lies in whether politics is under an obligation to discuss the nature of the perfect or normative forms of social organization, with their implied moral imperative and 'ought'; or whether its concern is only with actual forms, or with average forms, or with simplified forms illustrating the principle and methods of political action, what *habitually does* and perchance *must* happen,—or, lastly, even with developed forms, in the sense, however, merely of those which are most explicit and, hence, easiest of understanding. If Aristotle meant more, by his advice to study things in their more perfect and less embryonic forms, than that the more developed form will (we must add, sometimes) show most distinctly the characteristics of the institution, was not this advice a lapse upon the part of the great naturalist, which has condoned, by his authority, loose thinking to this day? Is politics concerned with the methods and more fundamental processes of all political

[3] H. Sidgwick, *The Elements of Politics*, 1897, p. 15.
[4] *Ibid.*, p. 15.

organization, sometimes susceptible of generalization, perhaps even yielding deductive statements following from the necessities of organization; or is it concerned with "the best of all forms of political association for persons whose life is capable of approximating most nearly to an ideal?"[5] The latter has remained the orthodox position, and it is not likely to be disturbed either by an historical school which yields no principles or by the pretentious claims and inferior philosophy of the schools of Comte and of Spencer.

Is the orthodox doctrine right? In the writer's opinion it is emphatically wrong. It is wrong, not because it is not in a measure true, but because it is not the entire truth and misleads us in our search for fruitful methods of interpretation. This is not, of course, to say that we cannot introduce a *distinction of practice* between the contents of political and of ethical action, or between moral and non-moral acts. Nor is it to introduce the misleading distinction between means and ends, as though these were as capable of concrete disconnection as railway lines from the railway termini. But it is affirmed that we may *give an account of a subject,* such as politics or economics, from as different points of view as are those of the physicist and the musician in their accounts of sound. It is further affirmed that, as a matter of method, it is no less expedient to do this in politics than in economics and that, in so far as men are not only choosing but also organized beings, it is *pro tanto* as necessary to study process apart from valuation in the social sciences as in the physical sciences. And the most cursory inspection of the literature of political theory will show that this has not hitherto been done.

The alternative method of interpretation, which is here preferred, is not what Professor Moritz Bonn has stigmatized as "a cheap pragmatism", resulting in the production of nothing better than manuals for diplomats,

[5]Aristotle, *Politics,* II.

guides for civil servants and textbooks for students of public utility bodies. We may agree with such writers as Professor W. Y. Elliott who are convinced that "facts cannot be separated from ideas with any more fruitful results than attend the abstraction of ideas from facts". Politics does not come much nearer to attaining the dignity of being an autonomous subject in America where it risks being submerged in the accidental details of Government, than in England where it is treated as a branch of Ethics or History, or in France where it is an appendix to the study of Law. The proper basing of the subject will probably require the costly assemblage of a mass of relevant data hitherto uncollected or buried in unread governmental publications and 'blue books', but the treatment of the material will require the deductive as well as the inductive method.

The objection to the approach to the study of political phenomena by the road of Ethics is not that we are thereby led to concern ourselves with "ideas" and "abstractions", but that all our study of social conduct becomes perfused with estimates of value. The result is that, when we are saved from the dogmata of legal metaphysics, we are treated to rival philosophies of the state and of society which appeal, on analysis, to our judgment of the relative value of various human ideals, such as social devotion and personal initiative. And, although we may prefer the new social scheme to the old, as apparently more humane and just, we are aware that we are not materially advanced towards that understanding of social conditions which will enable us to decide what plans are feasible and to affirm with confidence what social reforms are so far impracticable as to militate, in effect, against human happiness. And, until we know this, our utopias remain matters of idle dialectic or of aesthetic taste, and the realization of our ideals a matter of 'horse-sense'. To

substitute for this an intelligent comprehension and rational exposition of the methods men use in their social relations and organization is the task of the *political scientist*.

The task, on the other hand, of the student of ethics is to study the value and consistency of ideas of the good, and, in political affairs, to project his judgments on the social plane. As *political philosopher,* he is concerned not only with what men do but, also, with what, equally concretely, they ought to do. But precisely in this projection of consistent values upon the plane of social conduct lies the difficulty and the issue, as Kant saw long ago when he drew his sharp and entirely legitimate distinction between the world of free will and the determined world of phenomena in which the self-determining individual must endeavour to make his decision effective in action. In the social relationship, from which logically issues a series of limitations on action, it is necessary to discuss not only *what it would be good that a man should do, but what in particular he can do to realize that good.* When it comes to the question of means, the individual becomes immeshed in a logic of the social situation which is independent of his personal ideals, although not in some minute degree uninfluenced by them. This situation is a construction of the wills of men past and present, compounded with more alien and material factors. To these rules of what it is possible to do, which issue from the very fact of relationship, we must adapt our notions of an orderly society and of the means of improving it.

These political rules are not to be arrived at solely by *a priori* speculation on the principle of consistency. The "concrete morality" of the Hegelian, in so far as it teaches something which ought to be done and not a mere adoration of the intrinsically determined process, is as vain as the allegedly "subjective morality" of the disciples of Kant, until we understand the rules which govern the realization

in the concrete of any morality. Nor is it profitable to follow Hegel in considering these rules, dictated as much by the non-moral as by the moral elements in the social situations, as themselves identical with principles of ethics, metaphysically considered, springing logically from the eternal foundations of being. Rather it must be confessed that, historically, our notions of what ought to have been moulded by our experience of what has in fact conduced to social harmony. We do not, however, wish here to affirm a pragmatic theory of ethics apart from logical considerations of coherence and consistency. We merely wish to state that, whatever may be our views and scheme of the good, its realization depends upon an objective situation of which the system and rules may profitably be studied in their own right. This bondage of what ought to be (in the future tense) to what can be has long been patent in the field of economics; it is time that it should be recognized in that of politics. This contention is not, of course, designed to affirm that any given economic or political institution cannot be changed, and another more conformable to ethical ideals put in its place; but it is to say that, *whatever* may be our economic or political ideal, it will have to be realized by certain methods and cannot be realized by other methods.

Hence, there is a choice. Either, on the one hand, we may present for consideration a scheme of public welfare and a political ideal, as deserving of approval because its premises accord with certain common "moral intuitions"—if this phrase may be permitted, since it is difficult to find any other words save "aesthetic judgments" by which to denominate, e. g., some men's apprehension of the duty of self-expression in conformity with an as yet unrealized social harmony, and other men's sense of the right that the actual interest of the majority has to be preferred to that of the minority. Or, on the other hand, disregarding the

varying ideals of men, often fundamentally at variance owing to the lack of sufficient experience to permit of a discriminating judgment, attention may be called to certain facts and sequences which we must admit to exist or be customary, whatever interpretation we may choose to put upon them.

That a man of property has certain means for self-expression which a poor man lacks is a fact, whether we do or do not hold that a man should be able "to exercise a continuous initiative above the things which make life significant", do or do not hold these means important to "living with dignity and self-respect", and do or do not hold "magnificence" to be a virtue. The social consequences of unfettered testamentary rights are matters which can be studied independently of whether we believe in the equalization of property or in the encouragement of the psychological motives for effort and thrift. The consequences of war are not the less its consequences because they may happen to be very repugnant to the ideals which we entertain on the subjects of national development, sovereignty, patriotism, courage and the like. Whether our ideal happens to be a present social harmony or it is our conviction that "war is the father of all things", and that nothing must impede the ablest from inheriting the earth, the study of social sequences will indicate to us, at once the difficulties which confront, and the facilities which offer themselves for, the realization of our ideal. The study of social method may be a less noble pursuit than the evaluation of social ideals, but it holds forth better prospects of substantial agreement.

In brief, it is possible to distinguish between an exposition, on the one hand, of the most reasonable and benevolent ideals for men to possess as a guide to political action and, on the other hand, an exposition of those sequences of social events which we detect as probable if

this or that course of procedure be adopted. And the danger alike of the Pluralist School of Gierke, Duguit, Cole, Laski and Krabbe, and of the Unitary School of Jellinek, Bosanquet, Esmein, Willoughby, and Elliott is that they display a comparative disregard of the method of approach through the painful study of fundamental social structure,[6] through the probing of social organization as declared by such data as emigration, employment, poor-law, health, marriage and population statistics and reports, through the detection (with all the joy of a chemical discovery) of habits in human social method. In lieu of this, they offer to our aesthetic sense of what is orderly, just, beautiful and good, rival appeals, liberal and conservative, alluring, but unsubstantiated by anything more conclusive than illustrative detail. Still we remain in the realm of independent judgments, too often swayed by unconscious prejudice, not in that of conclusions as nearly assured as man may reach to objective grounds for assurance.

II. "A man", says Spinoza, "whether wise or ignorant, is a part of nature . . . . . and does nothing, either from reason or desire, except according to the laws and rules of nature." It may, however, be objected that the structure of human society cannot be examined as we would examine that of a sea-urchin. We cannot for a moment ignore, in the study of politics, ethical considerations. We shall ascend to certainty, above the petty conflicts of the hour, thanks to our convictions as philosophic students of the

[6]The above distinguished jurists and political scientists are, of course, no 'arm-chair theorists'—a fact emphasized by Professor Graham Wallas in reviewing Professor Laski's *Grammar of Politics*. But although Mr. Laski commends (in his inaugural Lecture *On the Study of Politics*, 1926) such institutional studies as Profesor Wallace Notestein's admirably grounded work on the House of Commons in the seventeenth century, the broad emphasis of their schools tend to be on the humanistic study of ethical, legal or political theory, rather than upon the precise knowledge of past and present history so far as it tends upon analysis to yield a better understanding of the nature of actual social organization. But, for indications of the other line of thought, *vide*, e. g. *Grammar of Politics*, p. 243, and Professor Laski's frequent insistence upon the need for an inductive study of politics.

ideals of the past and as men of broad ethical experience, not by grovelling in statistics or by deluding ourselves with vain hopes about the methods of economics or of political structure. These 'principles' and 'systems' tend, as Mr. Tawney and Mr. Hobson have in different ways shown,[7] to be the sport of the interests of an age or civilization,—its bad dreams in which it seeks to excuse itself to men for its conduct, *ad excusandas excusationes in peccatis.* These economic and political institutions themselves, it may be alleged, are not the partial expression of permanent human 'methods', but historical incidents and moments in the development of the ideal destiny of man. Instead of these passing conceits of *a posteriori* reasoning, we are asked to turn our eyes to ethical certainties or to the evolution of ethical ideals in history.

It is true that the study of human social structure is not comparable to the study of the structure of *echinus esculentus.* Men are living, conscious and purposive beings,[8] and the structure which they build up is not only adapted but purposive. The structure of the sea-urchin has been formed by (or, rather, has taken form under the action of) Nature, to perform its function. Social organization (perhaps more erratic in its functioning) more clearly indicates the purposiveness and wilfulness—although not always the conscious purposefulness—of the constituent members. Human beings, it must be admitted, are swayed, if by material stimuli, yet, at least in part, by imagined satisfactions and by ideal motives which do not trouble the nervous system of the shell-fish. The task of politics is to study, as its subject matter, masses of individuals wrought into social organizations—masses through and through

[7]R. H. Tawney, *Religion and the Rise of Capitalism,* (1926) and J. A. Hobson, *Free Thought in the Social Sciences,* (1926).

[8]Whether purposes present to the imagination are properly to be considered final causes in a teleological sense or are capable of being adequately described as *stimuli a tergo,* I am not here concerned to discuss.

moved by value-judgments. The subject matter of Politics is, then, a society of ethical beings. Hence, it may be argued, Politics must consider the ethical nature of man.

This argument is entirely sound so far as it goes. But the student of Politics is concerned with the moral opinions of men just in the same fashion as he is concerned with their other opinions, and as Machiavelli or Montesquieu were concerned with their religion, viz., in so far as these are factors actually influencing men's conduct. Ideas and ideals are realities as much as cannon and bayonet, plough and merchant ship, and like these merit political consideration when in action. Morals must be taken into account by statesman and by political student as facts to be reckoned with. But the student of politics, speaking professionally, is quite unconcerned with the *inherent value* of men's ethical beliefs. Like an art master, his task is to teach how the most skilful use may be made of these or those materials, not to dictate what design shall be executed in them. He is less concerned with an ethical opinion of indubitable propriety, weakly held, than with a moral superstition or with a prejudice obstinately held. Reasonable opinions are indeed eternal, but they are not always the most influential, nor is the significance of good opinions independent, as is pure logic, of the time and place. The student of politics is concerned with men, and men happen to be value-making beings, but he is not concerned with the soundness of their values. That he may also, in another capacity, be the best ethical philosopher on the subject is another issue, irrelevant to our present argument. It is enough to remark that, if he is also to be ethical philosopher, passing value judgments, caution, interest and self-deception may make him lose that bold, experimental and hypothetical attitude which is essential to the scientist. The student of politics may consistently be regarded as a detached observer of man's behaviour, and as concerned

with moral principles not for their own sake but as stimulating action. The thinker who insists upon regarding the problem of politics as the ordering of mutually exclusive and self-centered individuals in such a fashion that out of private vices accrue public benefits, is caricaturing the facts to suit a theory. But it is no less a distortion to assume that the forms taken by political institutions are in fact only determined by the nature of man at its most rational and moral elevation. The task of the student of the body politic is to study the physiology of social structure as he finds it, and not as he conjectures that it should be in accordance with the principles of some philosophic Galen or Hippocrates.

III. The task, however, of a statesman, it may be objected, is not to fit human beings together like pieces of wood in a jig-saw puzzle, so that each, despite his personal preferences, ideals and prejudices, accomodates himself under law to each. The political life involves action and movement. The statesman has to deal not with wooden blocks, but with human beings with purposes and policies. He must decide on such policies himself. The whole political arena is one of action, and of choice between alternative plans. And the student of politics, in studying this arena, must study these rival policies and adjudicate between them, as contributing to human welfare and social harmony. Hence his task must again be affirmed to be essentially an ethical task.

It must, of course, be admitted that the work of the practical statesman is in large measure purposive on a broad scale, and not merely one of opportunistic accomodation to momentary pressure. It may well be, moreover, that it is the loftiness or baseness of these purposes which peculiarly stand in need of criticism by ethical philosophers. But the political scientist should not be concerned with what may be the final purposes of the statesman, but with

what courses of action it is feasible to pursue and, among alternative courses of possible action, with what will be the consequences of each. He is not called upon to choose for the statesman which set of consequences he or his country may prefer, whether those of Fascism or those of Bolshevism, but to verify with as much care, and to demonstrate with as much impartiality, as is within his power, that these or these will be the consequences, if such or such a course is adopted. Of several theoretical courses of action the ethical philosopher can point out that some are desirable and others undesirable. Of several courses of action the political scientist, as a student of the social facts, should endeavor to fit himself to be competent to indicate that some are practicable, others impracticable. It will be incumbent on the statesman, if he wishes his work to be beneficial, to choose with the ethical philosopher, the desirable course and, if he wishes his work to succeed, with the political scientist, the efficient course to attain the proposed end. He will not repeat, for example, the error of many of the early legislators in the field of Poor Relief. Many, again, of those who agitated, in the name of good morals, for the suppression of the publication of divorce news in the English press must have been surprised (and yet the result was obvious enough) by the subsequent increase in the number of divorces. What indeed is efficient must in many instances be a matter of doubt, but what is *not* feasible will, if the field of interrelated social facts is systematically explored, probably not be so dubious. Men, during the course of history, have been using repeatedly certain methods of overcoming social difficulties, of which the adoption seems to issue almost inevitably from the circumstances of the recurrent situations. As Machiavelli wisely observed, each individual does not hew a fresh path to success through social problems or find a new *modus vivendi* for himself. On the contrary, certain typical methods of

coping with political difficulties, which tend to recur in only slightly different forms, are repeatedly adopted. It is the business of the political scientist to detect these habitual 'folkways', to examine their institutional 'methods', tried by the experience of the race, and to study at once the limits of their applicability and the variations which can be made upon them without the probability of disaster. The study of these methods is, of itself, an adequate problem for political science.

Were we all agreed (which is not conspicuously the case) upon our architect's plan of the just society, it would still be necessary that we should know a little practical engineering, and not leave everything to the 'horse sense' of our political foremen and bricklayers. We may say to some philosophers what Cromwell said to the Presbyterian divines: "I beseech you, in the bowels of Christ, think it possible that you may be mistaken". It is at least possible that, to the end of time, intelligent men will differ, according to their psychological constitutions, upon the precise shape which the just society should take, and that in the mundane world of political construction we shall be confronted by ethical pluralism as a persistent difficulty. What, to an artisan, may be Utopia, to a Henry James may be a place to leave post-haste at the end of a fortnight. Or we may explain querulously with Kant, that, without this diversity and "individualistic assertion," "an Arcadian life would arise of perfect harmony and mutual love as must suffocate and stifle all talents in their very germs".[9] Professor Laski has repeatedly affirmed that the statesman must guide his policy by consideration for the actual plurality of men's ideals. Even Professor Hobhouse, although pursuing one 'rational good', admits that what we choose to denominate 'moral impulses',—the very points of reference of our rational moral system—"must be there before we can appeal

[9]Kant, *Idea of a Universal History*, Sect. IV.

to them'; that "the principle which I accept as binding must be one that appeals to me as a decisive ground of action"; that, in the actual world of affairs, one man's good is not another's; and that the realization of the system which reduces to terms of social harmony these diverse goods will, at any given time, only be comprehended approximately and, hence, in varying fashions.[10] Short of omniscience, there remain many possible perspectives of the world, cross-sections of experience, which will on different planes and at different angles, prove consistent with commonly acknowledged moral premises and "principles of rational living". For example, Professor Hobhouse would admit that the scholastic Catholic world-view is not the only one, and yet it would not be unreasonable to admit it to be self-consistent. Ethics is not a problem in plane geometry.

We may indeed place the ideal and the good in society itself, as an organization, after the fashion that Mr. Bertrand Russell terms 'mechanical',[11] little recking whether the individual does or does not voluntarily cooperate. But we still remain faced with the perpetual facts—even although we choose dogmatically to deny the morality—of resistance and of dissent.

Whatever, then, may be the Utopia or scheme of social good which we plan in rivalry with our neighbour's scheme, if it is to exist elsewhere than in the *Jenseits,* it will have to conform to certain observed rules of social organization. We cannot indeed found upon the imperative character of these rules any ethical doctrine of obedience, as M. Duguit endeavors to do, but the rules hold nevertheless for all effective political acts. The principles are not themselves ethical, but their recognition is prerequisite to the realization of what is ethical. It may be that all our energies, in this generation, should be concentrated on the triple pro-

[10] L. T. Hobhouse, *The Rational Good,* 1921, pp. 106, 112, 121, 182.
[11] Bertrand Russell, *Prospects of Industrial Civilization,* 1923, p. 266.

gramme of securing the subordination of war to international arbitration; of removing from women disabilities due to status impeding a valuation by individual merit and competence; and of providing for the worker the possibility of obtaining the wherewithal for a life of self-respect and security from the carking fear of destitution. But our work will have been done in vain if our reforms are such as to fly in the face of what it is feasible to do without producing social dislocation and chaos. Behind the ideals and the value judgment must lie that wise intelligence upon which Plato, the poet and prophet of political science, insisted; and a knowledge of the social facts in which Plato was so conspicuously outdistanced by his great pupil, Aristotle. Behind our plea for the study of facts, of structure and of method lies the whole moral claim for realization of our ideals for civilization. Imperatively they command us to study. But these ideals are not the facts, structure or method,—nor yet the understanding thereof. "Nature is conquered only by obliging her." "God forbid", elsewhere exclaims Francis Bacon, "that we should give out a dream of the imagination for a pattern of the world". By the "general principles which govern success in social organization",[12] we mean those which are observed to govern it, not those which ought to do so *a priori.* Ideals may then differ beyond hope of reconciliation, without the study of particular methods being infected by a like multiplicity of standards. And the problem of the politicist is a problem of method.

IV. It may, again, be urged that, even if the object of political science is to study human methods of social accomodation, it yet cannot rid itself of the responsibility of pointing out which of these methods are in the long run more theoretically sound than others. After having studied the structure, it will develop its theory of social me-

[12]G. D. H. Cole, *Social Theory,* 1923, pp. 202-3.

chanics or of political physiology, and must make some practical suggestions about social engineering or therapeutics. And its norm of sound structure or of health will, apparently, be that of the maximum social accommodation or of harmony, with the minimum of friction and of coercive readjustment—"a minimal adjustment" to use Mr. Laski's words. In brief, we are back at the ethical discussion of social justice and of the harmonious state. And should we dispute this technical ideal, e. g. of harmony, we shall find ourselves committed, with Aristotle, to an inquiry into what may be the desirable life which the technical organization of society has for its object.[13]

It may be true that the ideal society, from a technical point of view, would be one of perfect harmony and of parallelism of wills,—although the contemplation of this technical perfection, which is like that of perfect equilibrium, must not be allowed to provide us with an excuse for ignoring either the permanent thrust of individual will against individual will, or the outbreak, each time society is conventionally stabilized, of new problems arising from the development of personality. It may, moreover, be, were we to regard as absurd Nietzche's system of values, that the perfect harmony of developing personalities 'into a complete and consistent' (social) 'whole' is the ideal of society and the political form of final value. The theoretical model, the diagrammatic sketch, as it were, of society for the political scientist would, then, be identical with the scheme of society towards which are pointing those ethical philosophers who accept this belief in the goal of social harmony. The 'normative' scientific society and the ethical society, the 'wise' and the 'virtuous' society, would (as Plato, the first political scientist, taught) be the same. We may even say more strongly that they *must* be the same.

It does not, however, follow that the method of

[13] Aristotle, *Politics*, IV.

approach to the study of the material should be the same, or that scientific politics is a branch of the poetical and value-judging work of the ethical philosopher. It may, for example, be that some particular social order has come to stand for injustice and ethically requires radical reconstruction. On moral grounds we might demand a root-and-branch departure from the old precedents. Institutions, after all, are like clothes, which should be suited, not only to fashion and propriety, but also to the climate and the body's health. We may challenge the 'what' of Montesquieu with the 'why' of Jean Jacques Rousseau. And, again, we might criticize on the ground that taken as a whole the system is not efficient in furthering human happiness. It may be like an obsolete machine; the parts may be cleverly made and effective in operation, but the machine in its entirety is no longer competent to meet requirements. Nevertheless, even here we must distinguish between our judgment upon the technical excellence which satisfies those in an industry and aesthetic or moral qualities which an outsider may detect in its products or their use.

From the political point of view the test of a social system is whether, in the short run or the long run, it *in fact arouses discontent.* Not that it must be rashly concluded that blessed is the country of which the inhabitants are ignorant and swinish, for ignorance is the mother not of content and progress but of servility and servile revolts. Discontent, however, in Russia for example, is not a problem for the political scientist until it exists or, in the light of past experience of human nature as distinct from the rarer human aspirations, is likely to exist. Home Rule for Ireland or Ulster may in fact allay discontent, although careful political theorists, such as the Cecils, may maintain that such an adjustment should not be tried as being based on a false theory of the state and on a false ideal of

nationalism. Cogent examples could be picked from the field of criminology. A divorce law, again, which permits divorce only on the ground of adultery may be an impeccable moral gesture, but it will still have to be asked whether it is actually efficient in conducing to morality or is in fact provocative of adultery as a means of divorce, and of similar symptoms of social unrest. *From the ethical point of view,* however, the test of a social system is whether men ought to be educated to obey or to repudiate it—whether, that is, it gives *justifiable ground for contentment.* So long as we live in time and in history, technical perfection falls short of ethical perfection by just the difference by which satisfaction with the good and competent falls short of longing for the beautiful and best. And the difference is the province not of political technique, which gives fulfilment to men's wills, but of education of mind and sentiments, which enlarges men's needs and enriches what they desire to will.

Issuing from the inherent necessities of social organization those rules of political method may perhaps be discovered which govern the embryology of institutions and condition all changes, organic as well as functional, which are not to be condemned by their consequences in lethal violence. The detection of the principles, which are much more profound than mere technical devices and are rather comparable to physiological laws, which condition social health and disease, must follow a naturalistic method. The harmonious energy of the social order resulting from healthy reconstruction will singularly exemplify whether we have rightly understood these principles of social physiology and morphology. But our judgment of what is the most beautiful human form will not be merely a summary of our scientific knowledge of physiology. Similarly, our judgment of the best civilization will not be merely a description of a well ordered and highly contented civil so-

ciety. The ethical ideal and the technical ideal are parallel, but not identical.

V. Civilization hastens forward on its own momentum, and suffers from disasters which appear to arise, not from contemporary human wills, single or collective, but from 'circumstances'—circumstances in part the fruit of past ignorance of the rules of social organization. And educational ideals are no substitute for that exact inquiry into present facts which often express the satisfactory, as distinct from the *a priori,* ideal of social accomodation. Amateur fumbling and criminal negligence in the task of the expert government of society and in the enactment of scientific and appropriate legislation continues to be responsible for much of the trouble. But experience too often makes fools of the wisest philosophers for us to allow that ideals, culled from past experience and educationally inculcated, are alone sufficient instruments, without patient study of the present situation, with which to meet contemporary difficulties. If, like doctrinaires, we persist, our ideals become gaunt ghosts, which as often curse as bless the birth of new forms of social life.

To assure the statesman that, at his best, he has only to concern himself with ethical judgments, of which political policies and programmes are a part—and which may perchance be learned thence—is to permit him to underestimate his obligations. He has not only to be convinced of the honourable and beneficent nature of his intentions, he has to be impressed with his obligation to be intelligent in administration.[14] And intelligent and scientific administration involves a far greater knowledge of social facts, apart

[14] *Vide* the Master of Balliol's article on "The State in Recent Political Theory", Political Quarterly, February, 1914, pp. 144-145. "In the meantime let us realize the government has before it a task of extraordinary complexity and supreme importance, and that for that task . . . . are necessary . . . . above all, knowledge on the part of all who govern or help to govern of all the bewildering details of the situation with which we are confronted and of the effects of interference with that situation."

from our moral interpretation of them, than has ever yet been attempted. It is better to be an inteliigent man with out strong ethical prepossessions, under whose intelligent and tolerant administration others may develop their own ideals, than to be a fumbling fool—some Pietro Soderini—even although one's abstract ethical ideals are impeccable. But no plea is intended here that political science is, in some strange way, 'superior' to politial philosophy, or that what matters is technique and not idealism—form, not life. It is best to be a wise man who recognizes that the discovery of a faultless ideal involves complete wisdom, and who yet moves on to the best ideal that he can see, with respect for the ideals of others and with recognition that the Kingdom of God is within men, not to be organized against their wills. It is best that the statesman should combine this ideal with an intelligent comprehension of how the social organization, as a practical system, may be enabled to run smooth and fast, despite the different satisfactions which men seek from its products—an intelligent comprehension of how the whole society may wheel and swoop together, like a flock of birds, although not all may be birds of one feather or of one song. And it is best for political science, holding itself detached from value judgments, to cultivate that wisdom which lies in a precise knowledge of the facts of organization and in an intelligent appreciation of their relationship. To teach that the conduct of affairs is a matter of moral intention only and not of scientific investigation—a matter which constitutes a distinct province of inquiry from that into ethical values—is to encourage some of the worst delusions which tend to be associated with popular government.

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THE PSYCHOLOGICAL BASIS OF AUTOSUGGESTION

I

THE scientific basis of autosuggestion has not been sufficiently explored. Owing to the great success of its founder, the late Emile Coué, and owing also to the efficient propaganda of Coué's disciples, its therapeutic value has come to be increasingly recognized. Many at the present day know what autosuggestion is; a few even practise it; but those who, to any extent, are conscious of its foundations, are indeed fewer. Even experts seem to have devoted more time to the practical side of the matter than to theoretical considerations. Perhaps this pragmatic note is responsible for the fact that even Baudouin's epoch-making work has missed that accuracy of definition and that examination of basic principles which are essential in a scientific treatment of the subject. If autosuggestion is to gain a scientific status; if it is to become anything better than a passing fashion; if, that is to say, it is to have a permanent place among human disciplines, it is necessary to inquire into its psychological foundations and to bring out explicitly the principles underlying this wonderful phenomenon.

Even in the interest of practice there is need for such an inquiry. Failure is not uncommon in the course of therapeutic suggestion, especially when the suggestion is an induced one. At times one comes across failure of a peculiar

kind; all the conditions which are ordinarily considered to be necessary for success are present; nevertheless the result is negative. The situation is so perplexing and the difficulty so inscrutable, that the case is given up as hopeless. When confronted with a situation of this kind it occurred to the writer that the failure might be due to the assumption, hitherto undetected and unquestioned, that there is no difference between one mind and another, and that, consequently, a suggestion naturally suitable to one is suitable also to the other. Efforts were therefore made to apply the distinction of mental types to the case in hand, and investigation was directed to the discovery of the type to which the mind in question belonged. When this was done, it was possible to give proper suggestions; and the result was a pleasing surprise. Failure in practice is after all due to a defect in theory, and the best way to overcome the former is to re-examine, and, if necessary, to re-state the theory on which practice is based.

The most practical method of approaching the end in view is to raise a question at every stage in the description of the phenomenon. Coué defines autosuggestion as the planting of an idea in the self by the self; and Coué himself and all other advocates of the method constantly refer to suggestion in terms of images. Is an idea the same as an image? If not, should not the distinction have bearing on the process? The difficulty is not over even if we consider the terms as synonymous. There are differences in ideas or images; in form they may be creative or representative, and in content they may belong to one of the types recognized in the psychology of imagery. To choose the proper idea or image is not enough; in order to be successful the suggested content should be positive in character. A negative suggestion, we are told, defeats its own end. What is there in the character of a negative that it fails of its purpose, while a positive invariably succeeds? This

problem has no doubt been examined by writers on autosuggestion, but the inquiry has not been penetrating enough. Even a positive suggestion will not succeed unless the mind has faith in the suggestion. What is faith? What psychical modification is brought about by it, and what is the law which governs its operation? Lastly, we are told that autosuggestion should be carried on in seclusion: we are to retire to a quiet room, and there to stretch ourselves at ease; we are to close our eyes and even plug our ears with cotton-wool; in other words, we are to place ourselves in a condition wherein consciousness is at the minimum and subconsciousness is at a maximum. Autosuggestion, then, is suggestion to the subconscious. This raises a very difficult problem. How comes it that consciousness fails and subconsciousness unerringly reaches the desired result? What is the manner in which the subconscious works out the suggestion? Is there any known law under which the process can be subsumed? These are some of the problems which lead us to certain foundation principles of psychology.

II

Suggestion should be relative to the type of mind to which it is given. That there are mental types has been recognized variously by various thinkers; and all the classifications have been admirably summed up by Jung in his *Analytic Psychology*. James divided philosophers into the tough-minded and the tender-minded, and Ostwald classified savants into romantics and classics. From the point of view of aesthetic theory, Warringer distinguished two forms of internal inspiration, viz., sympathy and abstraction; Schiller formulated two types of artists, the naive and the sentimental; and Nietzche contrasted the Apollonian mind with the Dionysian. In psychiatry, Otto Gross

[1]Pp. 287-298.

discovered two kinds of debilitated minds, the diffuse and the concentrated. Even from the linguistic point of view, as evidenced by the structure of verbs, Finck observed the active subject in contrast with the passive. But the best classification seems to be the one offered by Jung himself. His psychological types, the introvert and the extrovert, embrace all the others; and what is more, they are based on the very constitution of human minds.

Each of these types has its own marks. An extrovert "gives his fundamental interest to the outer or objective world, and attributes an all-important and essential value to it."[2] To the introvert, on the contrary, "the objective world suffers a sort of depreciation, for the exaltation of the individual himself."[3] Again, "in the one, the fundamental function is feeling, and in the other it is thought. The one feels his way into the object, the other thinks about it. The one adapts himself to his surroundings by feeling, thinking coming later; whilst the other adapts himself by thought preceded by the understanding. The one who feels his way transfers himself to the object; whilst the other withdraws himself from the object to some extent, and reflects about it."[4]

This distinction leads to an important corollary in the matter of suggestion. Concrete imagery would appeal to the extroverted mind; it is not only the medium in which it moves and has its being, but it is also its natural pabulum, and it is most easily assimilable. Moreover, when the suggestion has to be translated into action, it would be able to work in the line of least resistance. Similarly, abstract ideas would appeal to the introvert. The suggestion natural to the one is a synthesis of images, while that natural to the other is a system of ideas.

[2-3] Jung, *Analytic Psychology*, p. 292.
[4] *Ibid.*, p. 391.

III

Combinations of images may exist in two forms, and the same is true of combinations of ideas. They may be representative or creative. Representative imagery is the reproduction, in the present, of an experience which occurred in the past; its unity is but the mechanical bond of association; and it is what it is, because it just happened to be so. On the other hand, creative imagery, as its very name signifies, is something which was never experienced before, but which is presented to the mind for the first time. An element of personal interest has given it a principle of structure. There is no doubt that the raw materials for both have been obtained from the past. In the case of representative imagery, these are presented in the same order in which they were once experienced. In the latter case, on the other hand, they have been subjected to a process of analysis and elimination; irrelevant materials have been rejected, and the selected ones have been rounded off into a picture in the light of a dominant purpose. A representative imagery is factual and a creative one is ideal in character.

The suggested content should be creative rather than representative. Suggestion is used for purposes either of edification or of cure. That in the first case the picture should be the expression of an ideal is obvious enough. In the second case it is possible to have a representative imagery, but even here it is necessary to use a creative one. The elements which compose a representative picture are held only in loose bonds. Each of these elements has trailed through particular times, places, circumstances, and each carries its own burden of associations. When it is presented, it has the fatal tendency to crowd the mind with its own comrades. Some of these are undesirable, nay positively harmful, guests, especially when the purpose is one of cure. To leave metaphor aside, revival of associa-

tion is generally controlled by an interest. It is the dominant interest of the moment that suppresses some associations and permits others to come up. When there is no particular interest, associations are revived in a choatic manner, and it is emphatically so in the case of a merely representative picture. On the contrary, in a creative picture much that is not wanted has already been excluded. The elements composing it are governed by a dominant purpose, and only those associations which are relevant, that is to say, which are helpful to the present situation, will be allowed to come up before the mind. In either case, then, the picture presented for contemplation should be a creative one.

If the imagery is distinguishable, in respect of its form, into the creative and the representative, it may be classified in a different way in respect of its content. Every student of psychology knows that corresponding to each of the senses there is a kind of imagery. It is on this basis that individuals are described as belonging to particular types, such as the visual, the auditory, the tactual, and so on. The average individual is a mixture, but there are some whose imagery is predominantly of one type. The imagery of the blind, for instance, is predominantly tactual and motor. Since the success of suggestion depends upon the utilisation of the gifts, the potentialities, and the inclinations, of the individual concerned, it is necessary to use, in suggestion, the kind of image which is natural to him. In the case of a man who is a pronounced visual, it may even be necessary to write down the suggestion, in order that he may read it over and over again. The advantages of these methods are indeed obvious. But the prior question is whether the individual subject belongs exclusively to any one type.

IV

Suggestion, if it is to be fruitful, should be conveyed

in a positive form. That a negative suggestion, by reinforcing the very thing which is sought to be removed, defeats its own end, has been well recognised. The best way to remove a pain or to cure a defect is not to make a frontal attack on it but to catch it on the flank. The formula used should not have any direct reference to the pain or defect; it should rather be such as will exclude it altogether. For example, if a man wants to get rid of the pain of tooth-ache, it will not do for him to say to himself, "I have no tooth-ache", for the more this formula is repeated the worse becomes the pain. This is the paradox of the negative. It would appear that there is something in the character of the negative or in that of the subconscious which enables the negative to usurp the function of the positive. On the analogy of the law of reversed effort, which Baudouin formulated in connection with the exercise of will in suggestion, we may describe the usurpation of function by the negative as the law of reversed function—as soon as negative suggestion enters the subconscious it functions as its corresponding positive. This usurpation indeed looks like a mystery.

The usual explanation of this mystery is that the negative formula prevents the outcropping of the subconscious. In the words of a well known disciple of Coué's, pain, "by monopolizing the attention, keeps the conscious mind fully alert and prevents one from attaining the measure of outcropping needful to initiate successfully autosuggestion. . . . . By continually repeating 'I have no pain', the sufferer constantly renews that thought in his mind. Unfortunately, after each repetition the pain thought insinuates itself so that the mind oscillates between 'I have no pain' and 'I have some pain!' "[5]

This looks plausible. The negative formula brings to the mind the very idea which it expressly intended to re-

[5]Brooks, *The Practice of Autosuggestion*, p. 101.

move, and this idea is bound to bring its own associations with it and thus make the case worse. But the plausibility of the explanation disappears the moment the issue is clearly stated. The question is not why a negative formula prevents the out-cropping of the subconscious, but why, even after the subconscious state has been attained, the negative suggestion behaves like the positive one. The two judgments, "I have pain," and "I have no pain," have different values; they stand for two distinct acts of thought. If they lead to psychic modifications at all or produce certain results, these should be altogether different from each other; but as a matter of fact we find that they produce exactly the same results in the subconscious. It is admitted on all hands that there is a valid distinction between a positive statement and its corresponding negative; each has its own logical significance; and the logic of the subconscious cannot be different from that of consciousness. Therefore, in explaining the phenomenon of reversed function, due importance should be attached to the significance which a negative undoubtedly possesses.

So much being premised, we may enquire into the nature of the negative. The mental process corresponding to a negative proposition consists of two factors; there is, first, the suggestion of an idea, and there is, secondly, the rejection of this idea. A negative then is a binary compound of two acts, united but distinguishable. When the mind frames the statement, "A is not B," B occurs as a possible predicate of A, but this possibility is immediately rejected. In so far as a negative implies an act of rejection, it is clear that the will is involved as a constituent element. We may even go further and say that the significance of a negative depends to a large extent upon the presence of will along with it; take away the will, and the socalled negative is automatically resolved into a positive suggestion.

To be sure, this is what happens when a negative sug-

gestion is made to the subconscious. The formula is first manufactured on the conscious plane and then handed over to the subconscious. It could continue to have a meaning and value only if the subconscious psychic process corresponding to the assimilation of it implies the presence of will. But we know that will is a mode of consciousness only; in the subconscious it is lacking, hence a negative statement has no meaning so far as the subconscious is concerned. Even though the suggestion of a possible predicate is there, there is no agency of will to reject it, with the result that what was first a negative statement loses its original significance and is metamorphosed into a positive one. It is in this manner that a reversion of function takes place in the case of a negative suggestion.

V

Suggestion operates efficiently when it is accompanied by faith. "Say it with faith. You can only rob induced autosuggestion of its power in one way—by believing that it is powerless. If you believe this it becomes ipso facto powerless for you. The greater your faith the more radical and the more rapid will be your results."[6] There seems to be some virtue in faith which not only facilitates the process by which results are attained, but also makes it more efficient. To discover what this virtue is it is essential to analyse faith itself.

Faith is an attitude of life. Life is complex, and it has to deal with a still more complex environment called the universe. In its own interest, that is to say in order that life may be lived, it is necessary that its activity should be allowed to go on unimpeded. The fundamental factors which constitute life are reason, feeling and will; and life is lived well only when the pursuit of truth, the enjoyment of beauty and aspiration after the moral ideal are allowed

[6] Brooks, *loc. cit.*, p. 87.

to have full scope. Life will be on terms with the universe and will feel at home in it, only on the assurance that the nature of the universe is such as to allow free play for the activities of life. But this assurance is not the result of knowledge, for there is as yet no knowledge. Confronted with the immensity of the universe, life, therefore, assumes an attitude of trust and takes for granted that there is some sort of order in what appears to be a chaos. The trust takes three distinct forms. From the intellectual standpoint it assumes the form that there is reason behind the universe and that, therefore, the universe is knowable; from the standpoint of feeling, it assumes the form that beauty is attainable; and from the point of view of will, it assumes the form that goodness is realisable. The first is known as the postulate of knowledge or the epistemological postulate; the second and the third may be called the postulates of value or the axiological postulates. The general attitude from which the special forms of trust issue is based either on unknown facts or on facts known only partially. In brief, faith is the fundamental postulate of life.

Faith is prophetic. When it is present, the mind looks forward to something to happen—a behaviour, an incident, an action. The best types of anticipation with which we are familiar in every day life is prospective attention. If we would enlarge this particular kind of attention, so as to make it cover all the aspects of life and render it into a life-pose, we can, in some measure, visualize the attitude denoted by faith. In this attitude we become capable of a keenness of observation and a sensitiveness of response not otherwise possible. Expectancy is at once mental and physical. In the first place, the mind is set in tune with the environment, so that any, even the slightest and most delicate occurrence is immediately noticed, caught and assimilated; in the second place, the body is kept in a condition of full preparedness so that, even before it is called

upon to act, it has already commenced acting. Whatever be the experience anticipated, whether it be the awareness of what goes on outside, as in the case of the mind, or the operation on external objects, as in the case of the body, it could not arise but for the expectant attitude of the organism. In this manner both mind and body contribute to the very making of experiences. Installed at the head of the movement, faith is able, if we may say so, to meet new experiences half-way, or, if the expression be preferred, to create its own objects. It is especially so when the experience which is looked forward to is personal in nature, for in this case expectancy amounts to the very pressing of the spring which releases the desired movement.

The application of this to the question of suggestion is now clear. Faith in the suggestion makes the mind alert, gives a tilt to it, and launches it in the desired direction. It is thus an important agency which is responsible for bringing about the process by which results are obtained. In the absence of faith, the individual remains listless, with the consequence that the suggestion falls flat and is not able to influence the mind to any appreciable extent.

The language of faith is that of the present. Faith is not a mere resolution waiting to be translated into action in some remote future. In tuning up mind and body and by giving them an expectant outlook, it has put them on the way to the realisation of the suggestion. In other words, faith is dynamic and operates here and now. The formula used in the suggestion is therefore expressed in the present tense. The present tense is not so much the condition as it is the sign of the existence of faith. This is why Coué's formula is always "I am getting better and better," and not "I shall get better and better".

VI

Suggestion is addressed to the subconscious. In waking

life the subconscious behaves like a fugitive. It eludes grasp and is not easily accessible. But there are conditions under which it slowly emerges to the surface. To retire into a room and to assume an attitude of complete repose: to close the eyes and to plug the ears and thus to exclude all distractions; to think of nothing in particular but to let the mind wander freely—these are some of the artificial ways in which the subconscious is coaxed into the light. There are even moments when the subconscious emerges naturally. In that hazy, drowsy, nebulous condition which immediately precedes sleep, or which immediately follows waking, consciousness is at the minimum and the subconscious is at the maximum, in respect of existence and function. This phenomenon of the receding of consciousness in the background and the advance of subconsciousness in the foreground, is called by Baudouin by the expressive name of "the out-cropping of the subconscious." Whether this out-cropping is brought about naturally or with artificial aid, it is the essential preliminary to any process of suggestion.

It is the subconscious alone that is capable of translating a suggestion into action. Of instincts of all kinds, of tendencies and abilities, inherited from the race or acquired by the individual, of the vast network of associations in which past experience has been conserved, it is the sole repository; and all this is charged with emotion, so that the whole of the subconscious may be said to have a force of impulsion. Hence it is like a power-house from which any amount of energy may be drafted for any particular purpose towards which it is tactfully directed. In point of fact, it is the subconscious which manifests itself in the details of life. But the world does a certain violence to it, so that to the world it appears in the crippled form called consciousness. Being in the zone of adaptability, that is to say, of interaction between the primordial life-impulse and the in-

tractable environment, consciousness has to attend to various interests—it is distracted in many ways; it has to battle against adverse circumstances, and is torn by internal factions. No wonder that the modicum of energy with which it started to meet the world is dissipated and ultimately exhausted. The subconscious has tremendous power, whilst consciousness has not energy enough to be employed in the difficult task of converting into a fact what is only suggested as an idea or image.

The key to unlock this power is imagination. When images are suggested to subconsciousness, it acts upon them in a fancy-free process. Away from the distractions of the world, unworried by clamant environments, it moves freely in the realm of imagination. It brings the latter in proper relations with those ideas and movements which are vitally connected with the desired results. It refuses to be coerced; and if by some accident the will strives to direct its operations, it turns its back and disappears altogether. In this situation the will is nearly impotent. Will lives in the midst of struggle; and all its efforts are directed towards the removal of difficulties, so that its energy is frittered away. Instead of reinforcing the original suggestion, it draws attention to the undetected impediments of the mind and brings them prominently to the surface. This suicidal tendency is exemplified most in the case of a negative suggestion. When it puts forth effort to compel the mind, for instance, to the no-pain idea, it really makes it concentrate on the very idea of pain which it is the purpose of the suggestion to overcome; while it has been parleying with the first, imagination has caught hold of the second. During all the time in which it has been "butting against a dead wall," the undesired idea has established itself. This self-defeating tendency of the will has been described as the law of reversed effort—"when the imagination and the will are in conflict, the imagination invariably

gains the day." Whether they work separately, the one in the realm of the subconscious, the other in that of the conscious, or whether they clash against each other, as in the case of a negative suggestion, the superiority of imagination over will is evident.

VII

What is the law according to which a suggestion brings about necessary changes in the organism? According to the text-books, the law which operates here is that of association. The suggested picture, we are told, taken either as a unitary whole, or as consisting of certain elements, revives a series of associations; in this way image is linked with image, and image with motor tendencies. Consequently the idea of movement, to put it in general terms, brings about the movement itself. This is no doubt true so far as it goes, but it does not go very far. Association can work only in the sphere of habit. If the suggestion in question was experienced before, if, that is to say, it is a repetition of what occurred in the past, then association can no doubt account for the results.

But suggestion has another function. It brings about changes altogether new, and these are not covered by habit and association. The problem is really one of accomodation: how for the first time, does the subconscious succeed in reproducing the image presented to it? Imitation being the best type of accomodation, we shall perhaps be able to find a solution if we analyse the process of imitation itself. The child notices the movements of an adult; this acts as a stimulus which issues in a motor response. When the imitated object is complex, and when reproduction requires persistent effort, the process goes on as a circular activity. Baldwin has given a clear exposition of this process, and it is worth while to quote him in detail. "The essential thing in imitation, over and above simple ideo-

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motorsuggestion is that the stimulus starts a motor process which tends to reproduce the stimulus and, through it, the motor process again. From the physiological side we have a circular activity—sensor, motor; sensor, motor: and from the psychological side we have a similar circle—reality, image, movement; reality, image, movement, etc."[7]

In imitation of this kind "the first reaction is not repeated. Hence we must suppose the development of a function of co-ordination by which the two regions excited respectively by the original suggestion and the reaction first made, coalesce in a common more voluminous and intense stimulation of the motor centre. A movement is thus produced which, by reason of its greater mass and diffusion, includes more of the elements of the movement seen and copied. This is again reported . . . . giving a new excitement, which is again co-ordinated with the original stimulation and with the after-effects of the earlier imitations. The result is another motor stimulation of still greater mass and diffusion, which includes yet more elements of the 'copy'. And so on, until simply by its increased mass, including the motor excitement of attention itself—by the greater range and variety of the motor elements thus innervated—in short by the excess discharge, the 'copy' is completely reproduced."[8] The subconscious realises the ideal presented in suggestion in precisely the same way in which a copy is reproduced by the child mind, or, more generally, in which an organism adapts itself to a complex condition of stimulus. We are warranted, therefore, in concluding that the law under which the activity of the subconscious may be subsumed is that of accomodation.

VIII

There is one thing about the subconscious which has been often admired but seldom explained, namely, the

[7] J. M. Baldwin, *Mental Development*, p. 126.
[8] *Ibid.*, p. 430.

note of genius in its activity. This is so interesting that no apology is needed for lingering a while on the topic. What is genius? When Goethe observed that "the first and last thing demanded of a genius is love of truth",[9] and when Schopenhauer described genius as "the completest objectivity of mind",[10] they seem to have noticed only two aspects of it, and it is necessary to add that "the degree of love in a man is the measure of the genius he possesses".[11] Wherever it expresses itself, whether in art, morals, religion, philosophy, or science, genius discloses three dominant characteristics—love, truth and contemplation. Love gives it an unique attitude towards its object, truth is the end which it pursues, and contemplation is its method.

Without entering into the psychology of sentiments, we may describe love, in general terms, as the desire for the perfect existence of its object, whatever its object be. Love stands up for the right of its object to live and grow according to the ideal immanent in it; it recognizes that the object has a worth, intrinsic to itself, which ought not to be subordinated to any consideration of external utility; and in the eye of love, no quality is a waste, nothing is indifferent, and everything has a place in the harmony of the whole. Therefore love not only idealizes, but also idolizes, its object. To love a thing, and to desire that it should continue to exist in rising grades of perfection, are, in strictness of language, two ways of expressing the same attitude. "Be ye perfect as your father in heaven is perfect," urges the Founder of our Faith. Weak human nature turned pale at this command, therefore He explained Himself in clearer terms, "Love ye one another."

Truth has reference to reality. Our ideal is called true when it accords completely with the reality of which it is the idea. This happens only when all the aspects and parts

[9] *Criticisms, Reflections and Maxims*, p. 224.
[10] *The World as Will and Idea*, Vol. I, p. 240.
[11] Turck, *Man of Genius*, p.3.

of the object are attended to and their values recognized. Ordinarily this is not possible. Practical life is governed by certain interests impelled by needs, and tainted by many prejudices; for this reason our vision becomes blurred, our notions twisted, and our judgments warped; consequently reality undergoes a sort of depreciation and diminution. It appears not as it is but rather as material for the satisfaction of a personal interest, and we see in it only what we need and we ignore what is irrelevant. To a hunter, for instance, a gazelle is so much of delicious venison, and nothing more. All this is rooted in a more fundamental distinction—the distinction between the self and what is not self. It would appear that this distinction is due to a natural defect in consciousness itself. Wherever consciousness functions there arises this dichotomy, with the result that the object is always externalized. Consciousness can thus yield at best knowledge about a thing. But truth implies acquaintance with reality; if this is so, then consciousness should be held incapable of yielding truth. Modifying Bergson's dictum slightly, we may remark that the more efficiently consciousness works the farther away we are from reality.

Acquaintance with reality is gained only by transcending consciousness; and this is what happens in contemplation. To rise above personal interests, selfishness, and egoism; to transport ourselves into the heart of the object by an act of sympathetic insight; to live and move within it; to pulsate with its life; to feel as it feels itself—this is to contemplate. In this condition, the distinction between the self and the object vanishes and the two become united in one experience. It is this state of at-one-ment that Schopenhauer indicated by "the completest objectivity of mind." Call it what you will—mysticism, intuition, contemplation; it is in it that an intimate acquaintance is established betwen the mind and its object; it is by means of it

that the object is completely explored, and it is through it that an inside knowledge of the object is gained. When the mind emerges from contemplation and gives expression to its experience we call it the utterance of genius.

Such or nearly such are the ways in which genius goes to work. The subconscious also adopts these ways. Its very nature gives it a privileged position: it is not handicapped by the distinction between the subject and the object, nor is it vitiated by any kind of narrow personal interest. Hence reality in its eye does not undergo a shrinkage, but appears exactly as it is; and knowledge is not merely a snapshot taken from an external view-point, but an intimate acquaintance developed from inside experience. Even when the object is material in the ordinary sense, the subconscious weaves it into a pleasant process of imagination, continuously operates on it, and holds it before itself; and but for the irruption of consciousness into its sequestered life, it would dally with it forever. When the object happens to be psychical in nature, as in the case of suggestion, it is dissolved, absorbed, and assimilated into itself, so that the suggestion brings about a permanent modification of the whole organism. Here is genius, if it is anywhere. It seems that genius is after all another name for the subconscious working of the mind.

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A THEORY OF THE UNCONSCIOUS

BY a "mind" we certainly mean more than is present to consciousness at a given moment. Not only past cognition, but also past affection and conation, influence my present consciousness. What I shall now like and dislike, what I shall now desire and shun, and even what I shall now perceive and think, are influenced by my past likings, desirings and strivings. Nor need I be conscious of this influence. Early hopes and fears certainly produce habits of emotional reaction that survive long after the original experiences are forgotten. We incline to think, therefore, that past thoughts and feelings and desires must be stored within us in some secret place, whence they exercise a kind of back-stairs influence on all that we do.

But there is much to be said against the view that experiences can be stored and active though no longer conscious. For instance, Mr. G. C. Field[1] and Prof. Laird have forcibly pointed out that experiences are not enduring *things* that can be stored, but *acts* which occur and vanish. We may think of cognition as a mental grasping of something, or an asserting or judging. Affect we may think of as a grasping or asserting of value. Conation may be called the attempt to act. But an attempt is itself an act. And a prolonged attempt is a sequence of acts, each stage of which is ever beginning and ceasing.

Experience, then, is a mental act which is cognitive,

[1] *Mind*, Oct., 1922.

affective and conative all in one. We can no more store a mental act than we can store a physical act. A kick occurs and ceases. Having once kicked, the leg does not go on eternally performing the same kick. It may kick again; and the second kick may be like the first, may be qualitatively indistinguishable from the first. But it is numerically distinct. Each kick is a temporal process, with beginning, middle, and end, which differ in character. The whole kick cannot endure; because if it did, its beginning, middle and end would have to exist together. And, if this were so, the kick would not be a process at all. Similarly, then, experiences are processes having beginnings, middles and ends which cannot coexist. And, consequently, we must not suppose that experiences can be stored. Of course, experiences are *mere* processes. They are processes which, so to speak, bite upon something. They have content, and without content they are nothing, just as carrying is nothing unless it is a carrying of something. That which is carried may survive beyond the carrying, but the act of carrying is a process that ceases.

But though mental acts cannot be stored, it seems true that they leave a trace on *something* or other which *is* stored. Having experienced something, we may remember it; just as, having learned to swim, we may swim again. Swimming strokes are not themselves laid by, as tools are laid by, to be used again; but the skill to perform these strokes certainly is in some sense laid by. Similarly, acts of awareness are not themselves stored; but the power to perform the same kind of act again certainly is in some sense stored. Desires and fears, also, are not themselves stored. But they are clearly the outcome of something or other which endures, which *performs* the desires and fears in regular manners again and again. Moreover, desires and fears themselves leave their mark upon this enduring

something, so that in the future it may act with reference to its past desires and fears.

What kind of a thing is this "something" which endures? We only know it as that which is the source of conscious processes, and as something which endures and has a structure both innate and alterable. We may describe it as some sort of system of "tendencies" to act, or "dispositions" to perceive, think, feel, desire, and set physiological processes going. But such words as "tendency" and "disposition" tell us nothing but what we already know, and give us no inkling of what a tendency is when it is not acting. Some people venture to say that because this something tends to behave mentally, it must itself be in some sense mental. But in what sense? Bombs behave explosively, but in what sense are they themselves explosive? Clearly, in quite a different sense from that in which their behavior is explosive. In fact, by calling them explosive we mean simply that they may behave explosively. Limbs move, and are called mobile; but they are not themselves motion. Similarly, this unknown something which behaves mentally, and is therefore in a sense called "mental", is not itself *thought* or *desire*.

But it is claimed by the protaganists of the unconscious that distinctively mental processes can be proved to have occurred outside consciousness, and that therefore the unconscious must be mental both in structure and function. It is suggested, for instance, that wishes are not essentially conscious. They are processes of the unconscious, and the subject may or may not become aware of them. Moreover, he may be aware of them either correctly or distortedly. He may, that is, have a conscious wish which is derived from, and yet very different from, a deeper wish of which he knows nothing.

Now it is true that one may wish and not also be aware that he is wishing. I may wish my enemy's downfall, and

yet not think about the fact that I am wishing it. For conscious acts may themselves be objects of other conscious acts, or they may not. But whether or not a person is aware that he is wishing, his wishing is itself an act of consciousness. It is simply impossible to conceive of anything which should be a wish and yet not a kind of awareness.

Perhaps, however, I am not doing justice to the theory of the unconscious. Let us therefore consider Levine's account in his recent book, *The Unconscious*. His argument may, I think, be summarised as follows. He begins by asking, "Is there an activity which can be called mental and which defies complete expression in terms of chemistry or physiology?"[2] Introspection, he says, suggests that there is. This activity is said to be the crucial feature revealed in consciousness and in all behavior, and it cannot be explained in terms of any physical science. It is true that the physiological and the mental are very closely connected, that, for instance, the activity of the ductless glands is related to the emotional state. But knowledge of these glands, we are told, can only "amplify our conception of the physical side of unconscious processes. It by no means abolishes the need for a mental state."[3] The nature of mental states and processes, whether conscious or unconscious, can be known only by a study of consciousness itself. And the nature of consciousness, we are told, is as follows. In the first place, it is not a merely passive awareness, a mere reception of stimuli. It is an active "translation or interpretation" of stimuli, and it is "inexplicable unless it be regarded as the result of previous training."[4] But, further, the present response is more than the outcome of the organism's history. It is, (we are told) a choice, a construction, a "selection of innate or acquired response habits," in

[2] *The Unconscious*, p. 79.
[3] *Ibid.*, p. 81.
[4] *Ibid.*, p. 89.

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such a way that the response forms a unified, integrated whole. Thus (I suppose) when we walk to some chosen destination; or when we perceive certain visual stimuli as being in fact a visible, tactual, audible, smellable dog; or when we solve an intellectual problem; or when we fall in love:—on all these occasions we are making a construction, a selection of response habits, in order to deal adequately with the particular stimuli with which we are faced.

Such, then, is Dr. Levine's account of consciousness. And this kind of activity he says can be proved to take place outside the stream of conscious processes. For the data of consciousness are very incomplete. Mental activities occur which presuppose other mental activities of which there is not awareness. Quoting Freud, he says, "we have ideas whose origins we do not know, and thought products the elaboration of which remains a mystery to us."[5]

Now, apart from the special theories of Freud, it certainly has to be admitted that, in some sense, unconscious elaboration of intellectual matter does occur. A man is perhaps faced with a complicated problem which he cannot solve. In despair, he leaves it and goes about some other business. After a while he comes back to his problem. And though he has not been thinking about it in the meantime, the solution comes now without any effort. Or possibly, even in the midst of his other business, a brilliant idea flashes upon him, and his problem is solved. Clearly, we are told, intellectual processes must have occurred apart from the man's consciousness. We can scarcely say, in such cases as this, that the processes are really conscious, but have been forgotten; for in the meantime the man was perhaps busily behaving with reference to other matters. There is no *room* for the supposed forgotten processes. Yet I think that it is a mistake to attribute this kind of thing to unconscious mental process. All problems consist in seek-

[5] *Ibid.*, p. 92.

ing to coordinate ideas, or facts, or desiderata, that are apparently inconsistent. And it seems to me that the known principles of neural activity are enough to explain the unconscious part of this solving. For the tracts concerned with the two inconsistent ideas may be supposed to remain "warm", and to infect all their mutual associates, and cast them up into consciousness as marginal and negligible thoughts during the absorption in the other business. If now one of these mutual associates is the key idea to the problem, attention may seize upon it. For my part, however, I am not at all convinced that marginally conscious *processes* cannot have been going on all the time, though they have been subsequently forgotten.

But in the Freudian cases I suspect that the origins of ideas are often to be found in past explicit consciousness. The patient may not be now conscious of that past consciousness, although it has left its mark upon the enduring "something" that behaves mentally. Indeed, the past consciousness may be now quite inaccessible owing to some repression, owing to the fact that it is fundamentally inconsistent with some behavior tendency now dominant. Or it may even be that the past consciousness in question was not itself noticed at the time, or attended to. It may have occurred in a day dream, or an "absent-minded" trance, or for that matter it may have occurred in sleep. And as to day dreams, it should be noted that it is often impossible to recapture the content of a day dream, even immediately upon the sudden discovery that one has been dreaming. Have we not all had the experience of suddenly "coming to ourselves" with the knowledge that we have just been absorbed in some theme that is now inaccessible? But if this is so, surely this Freudian argument fails. Surely when behaviour seems to suggest past mental elaboration and yet the elaboration is inaccessible to consciousness, we have no right to assume that there has been unconscious

mental elaboration. On the other hand, we have also no right to assume that, when behaviour looks like the product of mental elaboration, it must necessarily be so. We must first be sure that it cannot possibly be the product of purely physical elaboration.

Dr. Levine and the psychoanalysts claim that the psychological nature of unconscious processes is proved by the fact that cures of mental troubles are made by psychological means, by revealing the psychical content of the unconscious. This argument is far from convincing. Psychoanalysts of very different schools seem to obtain cures by revealing supposed contents of very different natures. Which school is it that has discovered the real unconscious, and which are after all only curing by suggestion?

Levine suggests that the concept of the unconscious is justified by the help it has given to pathological theory. Does it not successfully account for errors, dreams, and mental disorders? Now it may be that this is so, and yet that the concept needs radical alteration on its philosophical side. But also it is impossible not to feel suspicious of the glib plausibility of many psychoanalytical interpretations of these phenomena. Dr. Wohlgemuth has shown[6] how arbitrary many of Freud's own analyses often are, and how great a part is played by suggestion, for instance in the case of Little Hans. But though we must, I think, be very critical of Freud and his followers, we need not pour out the baby with the bath water and deny all value to his work. We may well admit the epoch-making importance of Freud's discovery of the possibility of psychological analysis of the unconscious "something" which is the source of consciousness, and yet suspect that the principles upon which psycho-analysts work, and the theories which they devise, are often moonshine. Let me give one example of a dubious analysis from Levine himself. He

[6] In *A Critical Examination of Psycho-Analysis.*

sent a wedding present to a lady who was to be married on March 25th. She wrote her thanks on February 25th, but post-dated it March 25th. The explanation is said to be that the motive was "obviously one of anticipation or impatience, and it was easy to infer that the lady was happily engaged, and looking forward to the month of her marriage."[7] But surely, since the dominant theme of the letter was a wedding present, all matters connected with the wedding would be very readily called up. Moreover "25th" had an established connection with March. It is such hasty interpretations as this that make one welcome Wohlgemuth's rather ribald but effective attack on the whole system. Has he not given us a delightful bogus interpretation of a biblical dream as though it were a dream of his own?[8]

Of all Levine's arguments for the unconscious the most serious is that which is based on the occurrence of processes, outside consciousness, which seem to be inexplicable in physical terms. Dr. Drever, in a recent paper,[9] has very clearly outlined such an argument. The business of the psychologist, he says, is to study the behaviour of living organisms; and their behaviour includes their conscious processes. But the behaviour of living organisms, at any rate of human organisms, cannot, he thinks, be explained merely in physiological terms. Interests, prejudices, complexes are absolutely essential, and are beyond the scope of physiology. The characteristic of behaviour is that it is integrative, that it is behaviour by the whole organism in relation with its whole past history and its whole present situation. This integration, which physiology cannot fully describe, can be observed "from the inside" by introspection. But integration is the character not only of those processes which we can observe "from the inside", but of

[7] *The Unconscious*, p. 58.
[8] *Op. cit.*, p. 95.
[9] "The Nature of Consciousness," *Proceedings of the Arist. Soc.*, 1925, p. 139.

all behaviour. Consequently, we are forced to postulate "dispositions" toward such integrative behaviour. And these dispositions, innate and acquired, constitute the psychological "unconscious". But we are told to distinguish between conscious process, which is "a real process or event",[10] and the "unconscious", which is only "a conceptual construction for explanatory purposes", and is "of a different order from the psychological conscious". But not only, says Drever, must the psychologist postulate this unconscious structure of dispositions; he is forced also to admit, "in the meantime at least", unconscious processes. For we cannot explain events without these. "We must", he says, "assume interaction between the structural elements just noted."[11] And again, "The elements of an individual's mental make-up, whether we regard them as neural or mental structures, must be regarded as parts of the structure of a living organism. As such they cannot but interact with one another, inhibiting, facilitating, modifying the influence of one another." Thus Drever accepts the psychological unconscious as the only adequate means of explaining the facts of behavior, but he insists that it is not "a real process or event," but only "a conceptual construction."

For my part I cannot distinguish between a theory which means to describe a real process and one which describes only a conceptual construction which is meant to be true. If we are to accept the unconscious, let us do so wholeheartedly, and not seem to treat it as a kind of legal fiction. We are often told that if an explanatory concept works, and seems necessary in order to make the facts intelligible, we should accept it, even if it is impossible to form any clear and consistent idea as to what it is that it describes. For instance, we are told that physicists were

[10] *Ibid.*, p. 148.
[11] *Ibid.*, p. 149.

justified in postulating "invisible light" because they discovered etherial vibrations longer and shorter than those that are visible. But there is a serious confusion here. For by "invisible light" the physicists mean simply vibrations which do not afford us visual sensa. They do not mean invisible visual sensa. In one case there is a contradiction, and in the other case not. Now the concept of the ether has in it serious inconsistencies. In spite of this, it has certainly proved very successful as a working principle. But we certainly cannot rest content with a principle that is internally incoherent. And it is noteworthy that, owing to its failure to work coherently in the light of the more fundamental principle of relativity, many physicists are now inclined to discard the ether. If we are to adopt every principle which seems superficially to explain the facts, surely we should revert to crude animism in every case of perplexity. And indeed the concept of the unconscious is simply a reversion to animism of a very inconsistent type. It postulates an entity which it can only describe as neither physical nor conscious, as something which, to quote Mr. Field again, has no qualities.

Another defence of the unconscious consists in an appeal to the principle of continuity. Just as we have to infer particles of matter too small to be observed, so (the argument runs) we have to infer mental occurrences too faint to be observed. Practice in introspection leads to the discovery of many mental processes that were before inaccessible to consciousness. And it is always possible that there are other mental facts which not even an ideally perfect introspection could reach. If then, for other reasons, we need to postulate such processes, our inability to observe them is no argument against them. To this we must reply that processes that occurred but were not introspected were not unconscious in any strict sense. They were merely unnoticed. The striking of the clock may not be noticed

till it is past; but when we do notice it, what we notice is that we did hear it. It was *sub*conscious, if you like, but not *un*conscious, any more than unobserved matter is immaterial matter. The Freudian unconscious, however, is said to be in no sense at all conscious.

Doubtless Drever, though he postulates mere conceptual constructions, does not mean to hedge. He means only to insist that consciousness is determined largely by something, beyond itself, which (whatever it may turn out to be) cannot be described in the language of physical science, and yet is of a different order from consciousness. And certainly it is tempting to think that this is so. But there is another possibility. This unknown factor may be neither purely physical nor purely mental, nor of some unsuspected nature different from either. It may be no one simple thing at all, but a complex of the physical and the mental.

We are trying to account for certain kinds of physical and psychical behaviour in human organisms. But what is an organism? We know it as the sum of its manifestations, the sum, that is, of its appearances, its physical behaviour, and its introspected or inferred conscious processes. But the organism, as we know it, is more than an aggregate. It is an intimately interconnected whole or system of appearances, physical acts, and conscious processes. Every element in it seeks to be intrinsically related with every other element, whether physical or psychical, whether present or past. It is just this integration that constitutes it an organism. It is because its manifestations are thus integrative that we call it organic.

Now in some sense the organism is supra-temporal, at least on its psychical side. This seems to be proved by the nature of ordinary memory. We may of course, with Bertrand Russell, fancifully postulate that all memory is an illusion, that there never was anything before this specious present, though we all seem to remember past experiences.

But such a radical denial of the reality of pastness denies also the flux, or passage, which we observe in the specious present itself. We cannot deny the validity of memory (in principle, and apart from error) without denying also the whole of our experience. And, as Bosanquet very clearly showed,[12] if we take memory seriously, we must admit that in true memory what we have is no mere copy of the past event, but the past event itself. If all our memories are copies, how do we know that there were events of which they are copies, and that the events were like the copies? The essence of memory is given in such statements as "I, who am now, was then," or "I, who am now, hold what was then." In fact, if memory is to be taken seriously, it is a grasping of past events again from the present. When we remember, then, we are both past and present, and in an important sense supra-temporal. We are a unity of pasts in a present. This may seem to deny the contention that past acts of consciousness are irrevocable. But it does not. It only implies that what is past can be grasped again in a new act. And past acts may become objects of succeeding acts.

There is good reason for saying that we are enabled to remember the past by means of a present neural trace. It is only through the turnstile, so to speak, of a present neural trace that we can revisit the past, and know it as past. In the time between the original event and our remembering it, the neural trace endured, but consciousness was not utilizing it. It is a mistake to say that we had an unconscious memory all the while. We had only a possibility of remembering. That is to say, there was, in fact, all the while a neural structure through which we might revisit the past event. Of course, we are often influenced by past experiences even while we are not explicitly remembering them. Present perception, and thought, and desire, are all qualified by an unremembered past. Such facts we must account

[12] *Three Chapters on the Nature of Mind*, p. 105 ff.

for by saying once more that a physical trace enables us to revert to the past. But it enables us only to apprehend certain general characters of many past experiences, such as, in the case of perception, the general principles of perspective, and in the case of desire, the general character of many past value-judgments. Moreover, we do not, as in explicit memory, attend to the pastness of these experiences. We do not, so to speak, regard them from the point of view of the present. On the contrary, from the point of view of the past, we attend to and interpret the present. In explicit memory we attend to the past as such. In present perception, thought, desire, we attend to present events; but we can only interpret them by means of principles or general characters derived from the past, and now operating in the present.

If this account is correct, the cooperation of physical and psychical activity in behaviour is very intimate. For without neural activity the way to the past is blocked, and without conscious activity there is nothing which can utilize the neural gates to the past. We must not, then, expect to explain behaviour solely in terms of neural activity, or sole ly in term of consciousness. Nor, when each of these proves insufficient, should we try to supplement both by unconscious mental process. Rather we should try to discover in every case what kind of function is performed on the side of neural activity and what on the side of the activity of consciousness, and how the two combine to produce the complex fact of behaviour. It used to be thought that there was a physical thing, the body, and a psychical thing, the mind or self, and that one of the problems of psychology was to show the relation of these two. We might adopt the account of paralellism, and try to show that each worked in complete independence of the other, though every change in the one corresponded to a change in the other. Or we might adopt interactionism, and hold that, though each had

its own processes, the processes of each were definitely influenced at certain points by the processes of the other. But, as Drever has insisted, this radical dualism is false. The living organism does not consist of a body and a self. Nor is it a physical thing which acts not only physically, but psychically also. Nor is it a psychical something which acts not only psychically, but physically also. The living organism is observed to be a psycho-physical system of physical processes and conscious processes, which are internally related to each other. We may in theory abstract the one from the other; but in doing so we violate the nature of each if we suppose that either is anything without the other. Psychical and physical, then, are involved together. They are but the inside aspect and the outside aspect of the same organism. But some processes are initiated on the physical side, and some on the psychical. Distinctive kinds of acts are initiated by neural activity and by conscious activity. In other words, to understand behaviour we need both physical laws and psychological laws.

This view suggests some kind of "emergence" theory. For we may suppose that at certain stages in evolution new principles have come into operation not predictable from the manifested nature of earlier entities. Thus we may suppose that, from certain patterns of the physical, processes of a new order, namely the psychological, have emerged; and that these processes, once they have emerged, react upon the physical, "in their own right," so to speak. This need not mean that something absolutely new has been injected into the universe. It may mean that something which hitherto had manifested itself as purely physical, was only enabled to manifest its fuller, psychological nature when a certain physical organization had been reached.

How then shall we describe from the psychological point of view the special office of neural activity, and the

special office of the activity of consciousness? We shall certainly have to make some use of the doctrine that neural traces are in some sense vehicles or instruments of consciousness. And this doctrine is often criticised as being an unjustifiable and useless lapse into physiology. Yet I think that it is by now clear that in some sense consciousness is limited by the limitations of neural activity. The cerebral lesions connected with the various aphasias are enough to make this seem at least very probable. And if this localized relationship between consciousness and nerves is once granted in principle, we are entitled to use it, even if we know very little about its detailed application.

In the first place, then, it seems that without neural activity there can be no consciousness; not because nerve secretes consciousness as liver secretes bile, but because without neural activity there can be no content for consciousness. The objects of consciousness are given through neural activity. In the second place, these objects are integrated. Now, doubtless there is a neural side of integration. The whole of a neural area may perhaps vibrate to many impulses, like a pond, the whole of which ripples with a criss-cross pattern when many stones are flung into it. But the more intimate unity of apperception itself is the work of consciousness alone. Many objects are known at once, and each is known in relation with others. Within this unity of apperception consciousness judges, observes differences and likenesses, and makes all kinds of true and false assertions. This, I suggest, is definitely the activity of consciousness. It has, doubtless, a neural side, but it is initiated not physically, but in consciousness itself. Nerves may present material, but the act of knowing or judging is a conscious act of the organism. But this critical cognitive activity has indeed its neural side, and leaves a "neural trace." For, neural structure persists in an altered form after every neural activity, and has an increased fa-

cility for performing that kind of act again. And when that kind of an act is performed again (whether owing to external or internal stimulation) the object of the previous act is grasped again in apperceptional unity with the present situation. Or possibly the previous act itself may be thus grasped as an object. To sum up, neural activity affords access to the present and the past; the activity of consciousness integrates in apperception, judges, and alters neural activity by its inventions.

But so far we have considered only cognition. What are the respective functions of neural and conscious activity in affection and conation?

We said that the living organism tends to behave in specific manners in relation to its environment. Some of its behaviour is observable only externally in its physical manifestation, some is observable only "from the inside" (as Drever says) by introspection, and some is observable in both ways. When we say that the organism has certain behaviour tendencies, we mean that the supra-temporal system of physical and psychical manifestations which is the organism does in fact fulfill certain principles of behaviour. When we say that animals with empty stomachs tend to eat, we mean simply that it is observed that they do eat unless something prevents them. Now eating can be observed by introspection. It consists of sense perception, voluntary activity and pleasant feeling. When the organism is prevented from eating, the tendency may be manifested on the conscious side in other conscious processes, such as the pangs of hunger, a vague restlessness, or the explicit desire to eat. But if it does not become a conscious desire, it is no desire at all, just as on the physical side, if it does not become physical movement, it is no movement at all. Tendencies are not movements, nor are they wishes. They are principles or laws observed to hold of behaviour. And when the ordinary result is prevented, other regular re-

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sults occur. And on the psychical side one result may be that, through a neural activity, there occurs a conscious apprehension of the kind of object that is needed, and so a wish for that object. This account suggests that a tendency should be thought of not as an entity describable only as potential activity, but as itself consisting in a system of obscure *actual* activities, which may under certain circumstances give place to other overt actual activities, namely those activities which are "potential" in the tendency. This falls in line with the physicists' attempt to state all potential energy in terms of other kinetic energy. Every kinetic energy is, so to speak, potentially other forms of kinetic energy. And in the psychological sphere a tendency is a system of physical and psychical facts which are "potentially" other physical and psychical facts; that is to say merely that they may give place to these other phenomena.

It is perhaps useful to distinguish between a wish and a need. A person may be said to need something even when he has no knowledge of what it is that he needs, and so has no wish for the thing. A tendency, even a strictly physical tendency, may be said to need certain conditions for its fulfillment, without our implying that there is any consciousness of what those conditions are. Similarly with the organism, the acts or objects which would in fact enable the fulfillment of its nature may not happen to be known. We may be in a state of unrest, and not know what would give us peace. We need something specific; but it is a mistake to say that we have an unconscious wish for that thing. Yet after all a need, no less than a wish, involves *some* kind of reference to consciousness. A need is, so to speak, a potential wish. It is what anyone would wish, if he wanted a certain tendency fulfilled, and if he knew how it could be fulfilled.

This suggests the answer to our question about neural and conscious activity in respect of conation and affect.

For though tendencies have a physical side in neural structure and function, valuing is a strictly conscious activity. This does not mean that values are merely subjective or arbitrary. Values, I suggest, emerge from the nature of the total experienced situation, including the organism itself; but they are apprehended as values only in conscious affective and conative experience. Thus not only does the organism on its physical side tend to act in certain manners, but also on its psychical side it tends to pass value judgments on situations in respect of their furthering or thwarting its felt needs. Its needs are felt through the instrumentality of neural activity. But they are not simply imposed upon it by the operation of physical events, for those physical (neural) events are themselves the expression, in part at least, of the organism's total nature, including its past value experiences. The organism values primarily free-functioning. But the direction in which it can function freely is determined partly by prior psychological facts, though through the medium of present neural structure. For I suggest that this valuing activity, which is essentially conscious, does definitely have a neural side, and so a lasting effect on neural structure. And this neural side of the valuing activity has itself two distinct aspects. On the one hand, it is through the renewed activity of a neural trace that the organism may revert on future occasions to its original value experience. On the other hand, it seems to me, conscious valuation results in a selection of neural patterns of response, an efficient choice of behaviour.

First, then, with regard to the redintegration of past value experiences, we must note that, as with pure cognition, this may be either explicit memory or subconscious determination of the present by the past. That is to say, the past context may not be redintegrated, owing either to simple oblivescence, or to active repression by some dominant tendency which is incompatible with memory of the origi-

nal incident. (The neural side of repression we must think of in somewhat the same terms as the antagonism of muscular innervations). But though the past context is not redintegrated, neural activity connected with emotional states may redintegrate the original value feeling as an objectless affect. One possible source of such a trouble may be that certain organic reflexes may afford a particular organic resonance which in the past had occurred along with certain intense value experiences. This resonance may redintegrate an objectless value feeling which may perhaps be erroneously referred to the present situation.

With regard to the effects of conscious choice, the common sense view is that physical changes really are brought about by our choosing. And according to Levine, as we saw, conscious activity is really a "selection of innate and acquired response habits." It seems to me that we have no right to deny the evidence of introspection here; and introspection certainly suggests that this is the case. But we must beware. This conscious choosing is not indeterminate, arbitrary. It is choice determined strictly in relation to the organism's felt tendencies and past experience and the present total situation. These, however, are not its only determinants. To a greater or less extent (according to the person's particular capacity) choice is determined in relation to the findings of intelligence in its critical operation upon the world and the organism itself. Now the medium in which alone this kind of determination can take place is conscious activity. It is, in fact, determination of behaviour by conscious activity in the light of the whole cognized situation. The point is that without consciousness there would be no such determination, no such integrative action shaped toward the attainment of ends. Nor would there be any critical modification of ends.

Intelligence and valuation, then, are activities of consciousness; and they influence the course of neural activity,

and so the course of overt behaviour. But valuation, I admitted, is determined in relation to the present neural situation. We must remember, however, that the present neural situation is not *merely* the outcome of the operation of physical laws. It is itself largely the product of past conscious activity. And, moreover, present conscious activity, besides being influenced by present neural tensions, is enabled, by the mere instrumentality of neural activity, to live again the past, and act in relation to past value experiences.

If the foregoing account of the neural and conscious factors in behaviour is correct, how must we think of the supposed manifestations of unconscious yet mental activity? The only course open to us is to hold that in such behaviour all that is necessarily due to mental activity must be attributed to past consciousness, whether explicit or marginal, and that, owing to repression, this past consciousness is no longer accessible; while all that is necessarily unconscious in such behaviour is present neural activity. Now it is certainly difficult to explain, in such terms, behaviour which is apparently not rigidly mechanical, but seems to vary (according to the needs of the moment) in relation to a desire which nevertheless is not present to consciousness. Much, however, of the evidence which is said to imply unconscious mental activity can, I think, be explained in other terms. It is, perhaps, worth while to consider one instance, a dream cited by Dr. McCurdy[13] with the express purpose of proving that there is unconscious reasoning. During the day before the dream, Dr. McCurdy had read a newspaper paragraph on the frequency of dermatitis in Mah Jong players. It was pointed out also that the laquer used on Mah Jong pieces was obtained from a plant related to poison ivy, which itself produces dermatitis. No conscious thoughts relevant to the dream occurred (so we are

[13] *The Psychology of Emotion*, p. 534.

told) between the reading of the paragraph and sleep. In the dream McCurdy saw his own forearm and the back of his hand covered with an eruption. On the hand alone the eruption took the form of a criss-cross pattern. In the dream he thought that it might be eczema or poison ivy, and then that the lesions were certainly poison ivy. On waking he realized that the figure on the hand was like a Chinese character, and concluded that it was, therefore, meant for Mah Jong dermatitis. Now poison ivy affects only the arms and backs of hands, not the tougher palms and fingers. Mah Jong players would mostly touch the pieces only with their fingers; but they might rub with their infected fingers the tender backs of their hands where alone the disease could occur. This reasoning, according to McCurdy, was performed in the unconscious, and symbolically expressed in the dream by the Chinese figure on the back of the hand.

To this argument the first objection is that McCurdy certainly cannot be sure that he had no conscious thoughts of this nature before sleep. He says there was no reason why such thoughts, if they occurred, should have been repressed. But is it not a mistake to suppose that only repressed thoughts are irrecoverable? Surely very many thoughts are irrecoverable by ordinary consciousness simply because they occur in absent-minded states, when we do not sufficiently attend to them. If any one were to ask me what I was thinking of during breakfast this morning I certainly could not say.

But secondly, let us suppose there was in fact no conscious thinking from which the dream could be derived. Does the dream necessarily express a thought process? All it does is to present in image the natural form of poison ivy dermatitis, on the arm and back of the hand, and also to stamp with a Chinese character that region (the hand), which was most nearly connected with the game. Surely

this is a very natural resultant of the two sources of the dream. The reasoning has been "read into" the dream by awakened consciousness. One cannot but suspect that very much "unconscious thinking" should be accounted for in this manner.

If we were to be confronted with behaviour that could not be explained in this way, we should have to deal with it somewhat as follows. We should have to suppose that, either through the pure innate character of the organism or through modification by past conscious activity, some kind of neural mechanism had been set up which automatically regulated behaviour toward a certain end. Such teleological machinery we know in the governor balls that regulate some steam engines, or the proposed aeroplane which should automatically keep its balance and direct a course in spite of veering winds. Such a neural mechanism might, perhaps, drive and entice conscious deliberate activity toward a certain "unconscious" goal, by affording it pleasurable and painful "objectless affects" according to its approximation to, and straying from, the goal. On the one hand the goal might be a purely instinctive goal. That is to say the organism might be so fashioned, innately, that it could in fact only fulfil itself by achieving this goal, although it might have no knowledge whatever of the goal which alone would satisfy it. Or, on the other hand, the goal might be determined in part by past consciousness, now forgotten, this past conscious activity being the source of the present "governing" affects, which would arise through redintegrative mechanism of the nervous system. In neither case is the explanation merely in terms of neural mechanism. Such mechanism is only the bridge between, on the one hand, present consciousness, and, on the other, the past consciousness of the individual or the past psychological nature of the race. Such an explanation would need very careful working out, and might prove insufficient.

But, on the face of it, it appears less objectionable than the meaningless concept of unconscious yet mental activity.

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LITERARY CRITICISM AND THE STUDY OF THE UNCONSCIOUS

THE problem that I propose to discuss in this article lies on the borderland common to students of literature, of psychology and of philosophy. I shall approach it by a consideration of the relevant parts of Mr. Thorburn's discussion in his recent book: *Art and the Unconscious.*[1] I shall also make use of the book by Professor Prescott: *The Poetic Mind.* Professor Prescott in his preface sets forth his intention of studying the operation of the poet's mind, by the methods of the student of literature who lacks psychological training. He will collect and correlate the sayings of the poets themselves as to the workings of their own minds. He will leave it to psychologists to make the best final use of the material collected. Mr. Thorburn writes as a philosopher, considering the problem of art and its value in relation to general philosophical theory, but approaching it in the light of recent psychological studies. He takes the whole field of art as his province, and, relying upon the unity of the artist's attitude through all its different manifestations, chooses examples from whatever sphere of art may best illustrate his argument. He believes that in the new methods which have been applied by Freud, Jung and others, to the study of the unconscious forces of mind, there may be found clues to a deeper under-

[1]John M. Thorburn, *Art and the Unconscious, A Psychological Approach to a Problem of Philosophy,* Kegan Paul, 1925.

[2]Frederick Clarke Prescott, *The Poetic Mind,* Macmillan, 1922.

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standing of the nature and value of all forms of artistic expression.

The wide range and interest of the questions considered by Mr. Thorburn, and the fact that so little work has yet been done along these lines, makes it seem profitable to take up some of his problems in more restricted fashion. I shall here consider the question with which Mr. Thorburn opens his discussion—the question as to how far the study of the unconscious, through dreams and otherwise, can throw light upon the nature of poetry and all forms of imaginative literature.

My enquiry will be governed by the same presupposition which is suggested by Mr. Thorburn when he urges that the art critic misses the deepest, most interesting and most real thing about poetry and the arts, if he is unable to relate the arts to life. To relate art to life implies that we must be able in some degree "to trace the psychological path along which the artist passes from his own experience of men and women and nature to his creative work as artist." (p. 20). The belief that the critic of literature needs such psychological insight may be challenged on various grounds. It has been challenged in a witty and delightful little essay by E. M. Forster,[3] on the ground that any consideration of the personality of an author must be a distraction from his work, if his work is true literature. Literature comes from the depths below personality. To enquire about the personality means gossip as to the author's mode of life and private opinions, that have nothing to do with the art he creates. The answer to this objection can perhaps be made more adequately at a later stage of this discussion. At present I refer to it only for the sake of defining more clearly the manner in which I am assuming that psychology may aid literary criticism. Certainly I agree, and so would Mr. Thorburn, with Mr. Forster's

[3] *Anonymity: An Enquiry,* The Hogarth Press, 1925.

contention that the work of art comes from a deeper level than that of the surface personality, concerning which biographers may collect gossip. Yet I think the study of poetry must convince us that what happens even at that deeper level is not independent of the experience and distinctive strivings of the individual, and of the age in which he lives. Mr. Thorburn speaks of poetry as expressing a "vital attitude," (p. 20) and it is this attitude, or outlook upon life, which we come to know through the work itself, that we may try to understand further in relation to the history of the poet and of his time. If the study of the unconscious by the new analytical methods can help us to understand anything more of the workings of the mind at its deeper levels—of the way in which "vital attitudes" are conditioned and expressed—we believe that such knowledge must be of value to literary criticism.

In his initial presentation of the analogy between art and dream Mr. Thorburn considers first the relation between the dream and the ideas of waking life. A man has certain conscious thoughts and aims; he falls asleep, and when he wakes his accustomed thoughts again present themselves, but in contrast to them he recalls that in the interval of sleep strange images have occupied his mind—images perhaps of events and scenes of childhood, or of things monstrous and bizarre, seemingly irrelevant to his waking thoughts. Have these images any discoverable relation to the ideas and purposes of waking life? To answer this question we rely upon some process of interpretation involving concentration upon the impressions of the dream and search for the associations of its several parts. Different students of the dream, relying upon different presuppositions, have arrived at varying conclusions as the result of such search. Mr. Thorburn accepts the presuppositions of Dr. Jung, and has found evidence in his own experience

of the value of his methods. There is a wonder and sense of conviction that arises in the mind of one who has analysed a dream of his own, and felt its queer images become intelligible, yielding up secrets of his own life, displaying as in a picture thoughts and motives that he had only glimpsed in the obscure experiences of action. The technique that has helped a man to such a vision becomes for him no longer mere matter of argument, but a serviceable instrument of his understanding of himself. It is upon the basis of such experience that Mr. Thorburn formulates the relation which he believes exists between the dream and the ideas of waking life.

One is disposed to demand of any writer who bases conclusions upon dream analysis, that he should present some illustration of his method from his own experiences. Mr. Thorburn gives illustration only in somewhat general terms. The attempted interpretation of a single dream is seldom convincing when it cannot be related to that whole tissue of thought and feeling, and to the distinctive modes of representation, that appear as one interpreted dream is compared with others. In spite of this difficulty, I wish to describe here a dream of my own with some attempt at its analysis. But before doing so I will indicate, on the basis of Mr. Thorburn's discussion, the conclusions concerning the analogy between poetry and dream which I propose to examine with the help of examples.

Mr. Thorburn refers first to the character most obviously common to the dream and to the work of dramatic poet or novelist—the occurrence of figures that seem to act from their own spontaneity. The "denizens of the dream" are "centres of vitality whose self-motion is not to be controlled by the dreamer." (p. 13) The characters by means of which the playwright, or novelist, works out his intention will, "if he be a real poet," "present themselves with a certain degree of spontaneity." (p. 27) This analogy be-

tween drama and dream is, in Professor Prescott's book, developed with considerable detail of example. Professor Prescott also brings out, through his quotations and examples, that the persons both of dream and of drama seem to represent—in Mr. Thorburn's phrase—"capacities for life" on the part of dreamer or dramatist. Thus he quotes the statement of Havelock Ellis, that the "process by which dreams are formed through the splitting of the dreamer's personality for the construction of other personalities has been recognized ever since dreams began to be seriously studied."[4] On the other side of the analogy, he gives, among other instances, that of a dramatist, M. de Curel, who tells how the persons of his play speak and move before him, and describes them as a sort of "budding of his primary personality; into which they gradually, though not without some painful struggle, re-enter after the play is finished."[5] (p. 200).

An attractive subject for further investigation is presented in the relation thus recognized between the spontaneously evolving figures of drama and dream and the individuality of the mind before which they appear. Prescott offers evidence which seems to show that, even in cases where the figures portrayed appear derived rather from observation than from inner experience, there may have taken place the process which Mr. Thorburn describes as "dreaming through objects."[6] He quotes the description by Balzac of listening to the talk of working men and women on the boulevards: "Hearing these people I was able to adopt their life; I felt their rags on my back, I walked along with my feet in their worn-out shoes: their desires, their wants, all passed into my soul and my soul passed into theirs: I was like a man dreaming while he is awake."[7]

[4] H. Ellis, *The World of Dreams*, p. 196.
[5] Quoted from A. Binet, *L'Annee Psychologique*, 1, 1894, p. 124.
[6] *Art and the Unconscious*, p. 104.
[7] "Facino Cane", quoted in *The Poetic Mind*, p. 209.

But there is a further question which must be considered in regard to a play or novel, beyond that of the derivation of the characters—that of the unity of underlying intention to which each character contributes. Is there anything in the dream corresponding to such an intention? Mr. Thorburn believes that there is—that upon a careful scrutiny of the dream, with its associated material, there does emerge—at any rate in some cases—"an integral relation to each other" of its parts or scenes. (p. 14) He struggles to find satisfactory expression for the relation which he feels exists between the ideas of waking life and such unity of motif as appears in the dream, and ends with the tentative conclusion "that to the unity discoverable in an attitude of conscious reflection and deliberate plan, there can be found a correlate in the unity which appears in the dream, and finds expression in the characters of the dream." (p. 16) On the other side of the analogy he expresses the relation between the unity of the poem and the conscious idea with which the poet may begin his work, by saying that the idea must, as idea, perish, but its nature will remain recognizable "even after its absorption into the action and by the characters which it brings to birth." (p. 30)

I will now examine some examples, to see how far these statements are borne out.

While my mind was occupied with the questions to be considered in this article and with their application in my experience, I had the following dream. I was standing in the bedroom that I occupied as a child, looking down into the street. There a crowd of people seemed to be reveling, burning flaring lights in the semi-darkness and making noise with drums and pipes. My window was open and I wished to shut it, being afraid of the tumult of the crowd, afraid also to be seen shutting the window—at the same time half fascinated. As I watched, the crowd parted to leave space for a figure that danced wildly, a figure shaggy.

half child, half animal. While I gazed, the room in which I stood changed. It was now a class room full of students writing at desks. I seemed to be in charge, as at a college examination. The beat of the wild dance was still audible, and at the sound the students rose from their desks and began themselves to dance. I felt this was but natural, yet in pursuance of my responsibilities, appealed to them, urging that they were making confusion and could not do justice to their dancing in this room equipped for study. Almost to my surprise they responded, and laughing good-humouredly sat down again to their writing.

Waking in the night, with the dream vivid in my mind, I at once dwelt on its parts for their associations. The scene from the bedroom window recalled various childish memories, but especially those connected with the celebrations of the fifth of November—Guy Fawkes day. I recalled how excited I used to be, so that I could not sleep for eagerness at the thought of the grotesque figures in masks and paper tatters that would appear in the streets the next morning. In the evening we children put on masks and paper trappings and ran about the house; and out of doors, later, there might be torchlight processions, and we would hear rumours of rowdy burnings of unpopular townsfolk in effigy. The mingled fear and fascination that a timid child felt at all this was reproduced in the dream, but the music and the dancing figure were not wholly acounted for by these memories. The dancing of satyrs was suggested, and as such literary associations arose, together with the childish memories, I realized—what I had not thought of while reading anthropological discussions of May day, or other survivals of ancient rites—that these November celebrations also must have had in them something of the fascination of ancient Dionysian revels. The masks and other disguise, the temporary defiance of accustomed order, must have appealed to some

energy in the mind such as once helped to create the figure of the Greek nature god, and his attendant satyrs. Or so I interpreted the meaning of the condensation in the dream figure. The second scene of the dream recalled memories of sitting in college class rooms, supervising examinations in June, when intoxicating airs came in from sun-steeped fields. The dream seemed like a review of life from childhood through maturity, with the scenes strung, as it were, on one thread—that of the timid or qualified response to the appeal of nature forces. As I dwelt on the later part of the dream in relation to more recent experience, the laughing return to their work on the part of the students who had felt the rhythm of the dance, suggested a hopeful interpretation of the dream, as though the unconscious product were in harmony with the conscious desire to bring even into literary work more of the pulse of life. I would not, however, attempt to argue from that interpretation. I would use the dream only as an illustration of the bringing together, in the form of dramatic action, of bodies of experience which might also be linked by a reflective idea.

In an article in *The Monist,* October, 1921, Mr. Thorburn has spoken of the peculiarly aesthetic effect upon the dreamer of a dream of which he seems to see the interpretation. The sensuous emotional quality of the images, together with the far reaching relationships they bear, may produce, though for him alone, a true aesthetic impression. The images are crudely juxtaposed; their significance for another mind hearing the supposed interpretation is still largely external, not wrought into their texture, as it would be in a true work of art. Only for the dreamer himself do the associations, once realised, seem to inhere in the images. In the dream I am now considering, there seemed to me "an integral relation" of its scenes to each other. The figure of the daemonic dancer, whose wild dancing could daunt

and fascinate the timid child, could draw students from their books and perhaps infuse a new spirit of laughter into the work they resumed, seemed to be presenting, in a spontaneously formed image, a force which reflection could recognise as a common element in actual experiences—the force of the untamed life without the individual that calls to the instinctive energies within, to meet which, with the right adjustment, is a life's problem. One could assert a correlation between the unity of the dream and the unity in the dreamer's conscious outlook.

Is it possible to compare such a dream with a play or poem, to see whether we could thus bring out more clearly the likeness and difference which it is suggested may obtain between dream and work of art? One feels a certain absurdity in attempting such a comparison, but may suffer that for the sake of securing more definite embodiment for an hypothesis which is hard to judge when no illustrative material is distinct in the minds of the writer and reader.

I will take as example the mythological theme of Faust, as it appears in the play by Marlowe, and again in the earliest version of Goethe's drama. The poetry that embodies myth seems to give the most obvious starting point for the comparison between poetry and dream. The mythical figure of Faust, or of Mephistopheles, invites us, as an apparently realistic figure does not, to seek in it embodiment of half-conscious cravings, such as we think we recognise in the denizens of a dream.

Of the original legend of Faust—of which the several prose versions were so eagerly received in Germany during the years between 1587 and 1599—J. A. Symonds writes: "No epic of the Middle Ages condenses within shorter compass the spirit, sentiment and science of that period," with its "desperate revolt against intolerable mental bondage, the grotesque hysterical amusements as of some paralytic but gigantic infant, and the inordinate desire to penetrate

forbidden secrets." Marlowe in his play of Dr. Faustus filled the tragic figure of the German tale "with the intensity of life belonging to himself and to the age of adolescent vigour." "Faustus had in him the passion of that spirit which discovered America, which circumnavigated the globe, which revealed the planetary system, which overthrew the tyranny of Rome." The men of the time of Marlowe's play, "hailed Faustus as a hero, but they acquiesced in his doom." "The world-old identification of man's thirst for power and knowledge with rebellion still oppressed their spirits." I quote these passages[8] because they illustrate the way in which a figure in a play may be felt to embody forces discernible in the vital attitude and outlook both of the individual poet and of the men of his age.

In the early version of Goethe's "Faust" the same theme similarly reflects through its different treatment the attitude of the poet and of his time. Goethe's Faust, unlike Marlowe's, has little religious faith or fear. In place of faith are a romantic regret and yearning for something beautiful and lost. Into the revolt from the dusty abstractions of mediaeval learning and longing for fuller life Goethe imports new meanings—a new romantic yearning toward the wild aspects of nature, a new sense of the mysteries of cosmic law into which, through magic, Faust hopes to penetrate.

With these examples and comments in mind, let us take up the analogy between the poetic drama and the dream, and consider the "psychological path" between the poet's experience and the work of art. Goethe has told us[9] something of how, for a time in his youth, he lived with the symbol of the Faust legend, as he had met it in chapbooks and on the stage of the marionette theatre. "The puppet play echoed and vibrated in many tones through my mind.

[8] A. Symonds, *Shakespeare's Predecessors* pp. 503-4, 505fi 508 and 509, respectively.

[9] *Wahrheit und Dichtung.*

I, also, had gone from one branch of knowledge to another, and was early enough convinced of the vanity of all. I had tried life in many forms, and the experience had left me only the more unsatisfied. I now carried these thoughts about with me and indulged myself in them in lonely hours but without committing anything to writing." Here there is no reflective idea as the apparent starting point of the work, but rather a fascinated brooding on the theme, so that the imaginative and emotional life of the poet becomes gradually absorbed into it. So far as such a process can be regarded as the essential one in poetic creation we have an analogy with the dream. In the dream—or rather, should we say, in those dreams which the dreamer finds significant, his emotional life seems to have been unconsciously absorbed into certain images, which, thus charged with energy, have worked within him and fallen into patterns that reveal, if he can interpret them, something of the underground currents of his being. Similarly it would seem in poems such as the Faust dramas, by a process independent of conscious purpose, there is poured into the theme that fascinates the poet something of "the secret treasure of the heart," accumulated by many interactions with the manifold life of his time. It is thus that poetry becomes a record from which succeeding generations may draw, as Shelley says, all "which their peculiar relations enable them to share—more than could become conscious to the poet himself or the men of his day."

Moreover in the patterns found in dreams and in the themes which fascinate the poet we find recurrent situations presenting a certain correspondence. The disturbing influence of the daemonic dancer in the dream described, shows a distant resemblance to certain aspects of the figure tempting Faust in the legend. One could not make much of this analogy in the examples before us. The figure of Mephistopheles, both in Marlowe's play and still more in

the work of Goethe, is fashioned in relation to the character of Faust by so many subtle determinants that the general character he may have in common with simple variants of a nature god is of little interest. Yet this hypothesis of archetypal forms recurring in dream and work of art has been felt to have value, and seems worth examining in a wider range of material. Dr. Jung has urged that wherever creative phantasy is freely manifested, we find the primordial image or archetype, a mythological figure or situation characterized by peculiar emotional intensity, corresponding to some inherited "resultant of countless typical experiences of our ancestors."[10] The poet shapes the archetypal image in a form fitted to the needs of the time, so that men may be stirred by it afresh. In each of the great poems of Marlowe and of Goethe we are made to feel anew, in terms of a distinctive outlook upon life, the thrill of the archetypal situation in which an accustomed, and, as it were, hallowed order of existence is challenged by a force untamed, outlawed, infinitely alluring. The archaic reminiscence in the dream image has no such power to stir men's hearts, yet, as it comes home to the dreamer through the massed intimate associations of his own life, the strangeness amid the intimacy may give it a special significance for him, comparable to that which the genius of the poet can cause the whole community to feel within his theme.

The character of art as embodying archetypal images is considered by Mr. Thorburn in his chapter on Imagination. He makes clear at this point his judgment of the inadequacy of Freud's view as compared with that of Jung. "The attitude towards the archaic becomes", he says, "the touchstone separating the various schools of psychology. It is a question of the plasticity of the inherited psychical

[10]"On the Relation of Analytical Psychology to Poetic Art", *British Journal of Medical Psychology*, Vol. III, Part III, p. 229.

material." (p. 73). Ultimate problems of value, in relation both to art and to religion, are connected with this question. If, with Jung, we believe that the archaic images appear in dream and phantasy with a prospective significance, undergoing transformation in accordance with urgencies of the inner life of the moment, then there is opportunity for conscious purpose to ally itself with all there may be of promise in these unconscious products. Whether to be used for the ends of art or of practical life, they are means of access to a reservoir of power. To those holding this view the interaction of conscious and unconscious throughout the sphere of art becomes a problem of great significance and they have a clue with which to approach it.

At this point I will take up again the question of the relation of conscious and unconscious factors within that preliminary work of the poet which Mr. Thorburn calls "selective meditation." I referred to the young Goethe's musing upon the Faust legend, as a process in which the unconscious energies of his mind were passing into the images of the tale, with little exercise of conscious insight and reflection. But one is clearly not justified in taking this absence of reflection as typical.[11] Mr. Thorburn, in his discussion, selects as typical the case where the literary artist begins his meditation upon a play or novel with some reflective idea in mind, for which he tries to find expression. The reflective idea, he says, must, as idea, perish, as the

[11]Goethe's later method was very different. Compare the passage in the posthumously published *Abschied*, where he contrasts his later clarity of mind with the confused emotions which he expressed in his earlier work upon Faust, when he was "stirred by the pressure of human tumult" and "by the power of mystery."

Am Ende bin ich nun des Trauerspieles
Das ich zuletzt mit Bangigkeit vollführt,
Nicht mehr vom Drange menschlichen Gewühles,
Nicht von der Macht der Dunkelheit gerührt.
Wer schildert gern den Wirrwarr des Gefühles
Wenn ihn der Weg zur Klarheit aufgeführt?

Quoted in Croce's *Study of Goethe*, translated by Ainslie, 1923, p. 82.

characters and the action develop. Yet in some way it remains, giving unity to the completed work. He refers in a note to an interesting passage[12] in which Mr. Bullough discusses the statement made to him by a well-known dramatist as to his method of creation: the idea with which he starts "condenses itself into a situation made up of the interplay of certain characters" which develop in great independence of the author's conscious direction. Mr. Bullough remarks: "The paradox of just the germ part of the whole [i. e. the initial idea] being doomed particularly impressed my informant, as a kind of life-tragedy." Mr. Bullough regards the idea as 'the man's'; "it is the reflection of the dramatist's concrete and practical self." The 'characters', on the other hand, are 'the artist's': "they belong to the imaginary world." "As elsewhere, the distancing means the separation of personal affections, whether idea or complex experience, from the concrete personality of the experiencer, its filtering by the extrusion of its personal aspects, the throwing out of gear of its personal potency and significance."

For the purpose of examining these statements I will take, as illustration, Ibsen's play, "The Enemy of the People," which, with others, has been fully discussed by H. Weigand, in his book, *The Modern Ibsen*. Mr. Weigand shows that Ibsen began his play with an idea, or group of ideas, that was—in Mr. Bullough's phrase—"a reflection of his concrete and practical self", a group of moral and political ideas that were for Ibsen full of the urgency of pent-up indignation. We find in Ibsen's earlier letters formulations of the 'discoveries' which Dr. Stockman makes in the course of the play's action, such as that "the minority is always in the right," and "the man who stands alone is strongest." Some months after the play was

[12]Bullough, "Distance as an Aesthetic Principle," *British Journal of Psychology*, Vol. V, part 2, pp. 115-116.

finished, Ibsen wrote of Dr. Stockman in terms that showed how closely he associated himself with his hero. He spoke of himself as, like Dr. Stockman, a "fighter in the intellectual vanguard at least ten years ahead of the majority." "Dr. Stockman and I," he wrote to his publisher, when sending him the MSS, "got on excellently together, we agree on so many subjects. But the doctor is a more muddle-headed person than I am. . . ." Mr. Weigand, in his study of the play, has brought out something of what was involved in Ibsen's recognition of the muddle-headedness of Dr. Stockman—a recognition that seems related to the 'distancing' of which Mr. Bullough speaks. For, nearly as the views of Ibsen's hero corresponded with his own, yet the absurd and even anti-social aspects of the Doctor's enthusiasm for truth are brought out plainly enough in the development of the character in its setting in the play. "The psychologist in Ibsen", Mr. Weigand suggests, committed 'sabotage' against the creation of the 'irate reformer,' "sawing through the props on which the fine ethical facade of the doctor's indignation was built," (p. 120); and again, he speaks of the way in which Ibsen's characters when they began to live in his mind developed beyond the limits of the original idea: "the poet assumed more and more the role of an observer." (p. 75)

The question that suggests itself to me, when comparing this play of Ibsen's, or other plays,[13] with earlier expressions by the author of his original idea, is as to how far we are right in thinking of the idea thus formulated as 'the germ part' of the whole, or as 'bringing to birth' the characters and action. Is not the idea that perishes merely one form of expression thrown off at a particular moment

[13]Mr. Thorburn gives an interesting illustration of the absorption of the idea of conscious reflection into the imagery of the work of art, from Dostoievsky's novel *The Brothers Karamazov*. I have preferred to use an illustration from Ibsen in which I seem able to follow more clearly the transformation by the poet of the personal idea: but I think the general criticism would apply equally to Mr. Thorburn's example.

in the growth of something deeper and more vital, which is truly the germ part and which does not perish but finds fulfilment in the completed work? In a discussion by Vernon Blake[14] of the process of artistic creation, with special reference to sculpture, the term 'thought' or 'idea' is used for the artist's guiding intention, which may not be expressible in words, but only in the chosen medium. Even when, as in the case of the dramatist, the medium is language, in the special form of speech by which persons interact in particular situations, it seems equally true that the artist's real intention may not be expressible even to himself in other terms than in his chosen medium. Graham Wallas quotes, as illustrating the dependence of the poet upon his medium, the delightful and pregnant saying of a child: "How can I know what I think till I see what I say?"[15] Ibsen, as irate reformer, did not know what, as poet, he thought, till he saw the muddle-headed Dr. Stockman saying the things he had himself said, but in the manner and in the particular settings which the poet's art shaped. Then Ibsen began to know so much of his own secret thought that he set out upon the writing of the *Wild Duck,* perhaps as severe an act of self-criticism as poet ever achieved: and on the eve of the publication of this play he quoted, Weigand states, the verse in which he had formulated something of the sense of his task, and which Weigand translates:—

To live is to war with fiends [better 'trolls'—*trolde*]
That infest the brain and the heart;
To write is to summon oneself,
And play the judge's part.

I have dealt with this point at some length because it seems to me to open the way to large issues as to what we are to regard as conscious and what as unconscious factors in art and in reflection. It is natural to say that we are con-

[14] *Relation in Art,* Oxford University Press, 1925.
[15] Graham Wallas, *The Art of Thought,* Jonathan Cape, p. 106.

scious of our ideas, but surely no one has tried to give an account of an idea by which he lives and works without becoming aware of some sort of cleft between that inner reality and the formulation of it which, by the help of words, he throws on the screen of consciousness, as an object for himself and others. The idea which we formulate seems but an approximation to that vital idea that works 'behind the eyes' as a shaping principle in thought and action. When no such cleft is felt it is perhaps because some form of words has become so sanctified by social custom, or so identified with self-feeling, that its firm front quite obscures the sense of vital changes that may go on behind it. It is when this happens that what we find ourselves saying ceases to help us know what we genuinely think. Thought and speech alike settle down to be that 'ordinary conscious thinking' which Professor Prescott in his book seems to regard as the norm of thought, and describes as quite voluntary—"we think both when and as we will" (p. 39)—but "shallow," as compared with the dreaming thought of the poet (p. 90). No creative thought, whether it issue in poem or scientific discovery, in practical achievement or philosopher's vision, is conscious and voluntary in this sense. Always it must depend upon the operation of mental systems of whose growth and potentialities we can know little. Habitual sequences of verbal thought we can of course initiate, knowing how they will unfold, and we may set ourselves to work out mechanical problems with such habitual trains as units, contenting ourselves with manipulating the worn counters of thought and speech. But creative thought is not of that nature. It requires the directive interaction of what has been integrated as conscious form and recognised purpose with what emerges, still unformed, from the dark of unconsciousness. The self integrated through voluntary effort, with its shaping principles of action, can never become completely an object

of consciousness; still less, the wider self, with its unformed resources, upon whose co-operation the fulfillment of purpose may have to wait in creative thinking.

The failure to recognise this character of complete thinking[16] vitiates much of Professor Prescott's discussion. He seems to me to over-value the undirected associative type of thought akin to dreaming, and to identify it with the poet's thought too readily, because he usually contrasts with it only the mechanical kind of thinking with familiar verbal counters. Mr. Thorburn has a fuller sense of what is involved in true thinking. Part of the motive of his whole discussion of art is the belief that, without the study of the vital thinking of the artist, the philosopher can never come to understand the thought whose nature has been his special problem—the thought that aims at objective truth and knowledge. (cf. p. 98)

If we recognise the thought that aims at scientific or philosophic truth as creative, and as requiring interaction between conscious and unconscious factors, as does the thought of the artist that aims at beauty, how shall we distinguish between them? How mark off the distinctive character of the thought of the poet? Mr. Thorburn seems to me to follow the right clue when he lays stress upon the artist's medium. The artist is distinguished from all dreamers and thinkers who are not artists by his command over the particular medium in which his thoughts and dreams find expression.

The passage in which Mr. Thorburn introduces the reference to the medium, as the clue to the distinctive character of art, is one of particular interest. In it he presents an intuition in that first dim but arresting form when it clothes itself naturally in the language of metaphor. The

[16]Compare the admirable discussion of the interaction of conscious and unconscious factors in the complete process of thinking, in Graham Wallas' book, *The Art of Thought.*

artist's medium, it is said, keeps him in a sense asleep and dreaming, though with eyes open and hands active. "It is, somehow, the contact of the artist with the earth—with the sort of dark, earthly, earthy things that have never awakened and that infect him with the power of their slumbers." (p. 38) The clay, with its "cool, moist, earthy feel" is taken as a type of the primitive medium that shows that character most clearly. But what of the medium of the poet? With what dark, earthy, unawakened thing is he in contact, that, through it, his dreams may gain substantial being? Mr. Thorburn suggests an answer to this question through a consideration of the nature of drama. Here the group of actors are part of the medium of the poet. The play is written to be expressed through the speech and action, and the whole emotional personality, of living men and women. The actors are themselves artists, co-operating with the dramatist, using their bodies as the medium of art. We are led back in thought to the dance, in which drama originated, and which is one of the oldest forms of art, if not, as might be urged, the most primitive of all. Mr. Thorburn here makes the recognition of the human body as equal with the clay, "in its claim to typify the material medium through which alone art is possible." (p. 93)

Is it then in the human body and its natural powers that there lies the earthy enchantment that fascinates the poet and, holding him entranced, makes him able to tell more of the secret treasure of his heart than his conscious mind knew? It seems to me that there is something of psychological truth in the intuition thus fancifully expressed in regard to the poet's art. We speak of the poet's medium consisting in words, but words used in a special manner, according to deeply rooted understandings between the poet and those who enjoy his work. If we consider, for instance, the acted play, as the completest type of literary art, the words there spoken are charged many

times over with the rhythms of the body. Each speech obeys a rhythm characteristic of a particular personality—a personality created first from the resources of the body and mind of the poet, then, sympathetically, from those of the actor. Also, each speech has its place in a sequence of presented action so planned that the emotional significance of every part is heightened by the rest—a sequence of action moreover that may hold within it, as was illustrated in the Faust dramas, the instinctive urgencies of the life of an age. As the absorbed spectator, or participant, of a ritual dance feels his own body and spirit caught up into its rhythm, and thus knows communion with his group, so the spectator watching the close of a great play is transported into a visionary whole that vibrates around the momentary utterance and action upon the stage—a whole, spiritual and sensuous, the product of an interaction of many lives, present and remote. Nietzsche has described Greek tragedy as, fundamentally, a Dionysian dance that generates a vision—an Apollonian world of pictures; and through other literary forms one can trace something of the same character. When differentiation of a literary species has carried it far from the original bodily participation in song and dance, still, within the subconsciousness of the poet and of the sympathetic reader, there will persist sensuous reminiscence: the language is swayed, as it were, to the rhythms of the poet's mood, and with the changing stresses of the vision that unfolds.

It is hard to avoid vagueness in surveying, with reference to a single elusive idea, the whole field of literary art. In detailed studies of different literary forms I have found confirmation of this idea I am trying to express, of the sensuous reminiscences of complex activities of body and mind that haunt and enrich the language of the poet—reminiscences pertaining not only to the life represented, but to the language forms themselves. Thus, when Mrs.

Campbell[17] tries to express her sense of the distinctive form of Shelley's lyrics, the images of widening circles, soaring spirals, dominate her description. Is it not true that one cannot read with absorbed attention *The Ode to the West Wind,* without some sense of participating in its wonderful rhythms as in the movement of an unearthly dance? Or again, in Mr. Lubbock's[18] study of form in the novel, he is compelled to seek in terms of movement an expression of the characteristics he is trying to distinguish. He speaks of the marshalling and concentrating of the procession of figures that passes across our line of sight. One is again reminded of the ordered evolutions of a dance, or pageant.

Certainly this is only one aspect of the literary artist's relation to his medium, but the consideration of it perhaps helps us to realise how deeply the perfecting of that relation must influence the whole process of artistic expression. When the artist has found and mastered his right medium, then, as we seemed to find in the case of Ibsen, subtle truths latent in his experience may pass into expression through the channels of that medium, which could not otherwise come to consciousness at all. Thus, Professor Bradley[19] suggests that we have no reason to suppose that, if we could know the opinions and beliefs held by Shakespeare, as a man, we should find their value extraordinary. In Shakespeare's imagination "all his experience and thought was latent, and this, dwelling and working on the stories, with nothing but a dramatic purpose, and kindling into heat and motion, gradually discovered or created in them a meaning and a mass of truth about life, which was brought to birth by the process of composition, but never preceded it in the shape of ideas, and probably never, even after it, took that shape in the poet's mind."

[17]Olwen Ward Campbell, *Shelley and the Unromantics.*
[18]Percy Lubbock, *The Craft of Fiction,* 1921.
[19]A. C. Bradley, *Oxford Lectures on Poetry,* pp. 172-3.

Professor Bradley's reference to the state of the poet's mind when his poem has been written brings us to the final question with which this discussion is to deal—that of the relation between the creative and the reflective processes, as this relation appears in regard to literature.

Something of the process of literary creation we have tried to show is akin to the process of the dream. In both is something of the same urge, older and deeper than reflective thought or will, toward expression of the inner life in shapes palpable to sense; something of the same unconscious merging of the products of individual experience with those of the experience of the race. But, also, there is much in the process of literary creation that is akin to reflective thought, as carried on in those minds that find their true medium in the language of the understanding rather than in that of the emotions. The poet is in some measure necessarily the critic of his own work. The vital idea that passes in almost dream-like fashion, into expression through the poet's rapport with his medium, must be at least partially discerned and understood by him, that he may perfect its expression. In cases where we are able to compare the first draft of a play or poem with the completed form, we have some opportunity to estimate what the poet, as critic, has accomplished. In the study already referred to that Mr. Weigand has made of Ibsen's plays, the available first drafts have been closely compared with the later form. Ibsen spoke of his work upon his rough draft as consisting largely in the further "individualization of the persons and their mode of expression."[20] This may have meant, in part, a sort of spontaneous growth of the characters, the poet, assuming, as Weigand puts it, "the role of an observer." But it must also have meant purposeful critical labour, in the seeking for the best word, or detail of action, rejecting that which first appeared, in the

[20]Letter to Caspari, June, 1884.

contriving of links and welding together of parts, that the whole might fulfil that underlying intention which was gradually working itself clear.

This critical labour, incidental to the work of creation, need not involve much of that further effort of critical thought that goes behind the art product, seeking to discern something of the forces that went to its making, and of its relations within the history of culture. The poet may be himself capable of criticism in this sense. He may possess a twofold gift and feel the urge not only to create but to understand creation. Not at the moment when his ideas take sensuous shape, but at other moments and in a different attitude of mind, he may set himself the task of expressing in philosophic language the nature and relations of his own work as poet. A certain incompatibility there seems to be between the two attitudes or capacities, so that they are more often found as the gift of different men; yet they have a good deal in common. The philosophic critic who has not the gift of poetic creation yet knows, since language is his medium also, the joy of the discovery of the right word or phrase, that suddenly enriches his individual meaning with the racial experience, the triumphant recognitions, that have fashioned the word, and remain potent within it. He knows also the joy of finding, as he explores his subject matter, the illustration that with its sensuous vividness will serve to hold firmly together several strands of meaning, and so contribute to the growing pattern in the web of his discourse. Such adventures in interaction between mind and medium give him a sense of kinship with the poet. Thus, it is partly equipped by the experience his own craft affords him that the philosophic critic approaches the study of literature. Also, he should, of course, approach it with trained receptive sensibility.

Our initial question was as to whether the study of

the unconscious with the help of the new methods could contribute anything of value to the literary critic. I have tried to show how, in the work of art, we find meanings lifted from the welter of unconscious experience, displayed, in terms of a sensuous medium, as objects for social contemplation. The task of the philosophic critic involves a further detachment of meaning, from the particular medium, and from the conventions that govern at any particular period the process of expression in that medium. It is by the abstraction and consolidation of such meanings, or ideas that, as Mr. Thorburn urges, (p. 195) a higher degree of understanding can be established between one appreciative mind and another, and between the art-consciousness of different ages. We can appreciate the Faust and Mephistopheles of Marlowe's or of Goethe's poem more fully, and can enter the better into the appreciative attitude of the men of the time, the more we have attained reflective ideas concerning the forces within the human mind that these figures symbolize, and the ways in which they find expression in the literary medium. For the attainment of such ideas we need a fuller study of works of art in comparison with dream and myth, religious symbol and philosophic system—with all forms in which the creative energies of the mind find expression. It is as a contribution toward such study that I welcome the sincere and individual thought in the book by Mr. Thorburn that I have considered in this article.

MAUD BODKIN.

LONDON, ENGLAND.

REPORTS AND NEWS

THE INTERNATIONAL CONGRESS OF PSYCHOLOGY AT GRONINGEN[1]

The Eighth International Congress of Psychology was of such importance, and the papers there given were so numerous, that in reviewing them, it seems preferable that after grouping them conveniently, we tarry only with those that offer a particular theoretical interest, and then present, from our personal point of view, a critical statement, in order more easily to make evident the fundamental conceptions upon which they rest.

Among the most interesting papers, those of E. G. Boring of Harvard University, Ch. S. Meyers of London, and H. Werner of Hamburg, form a group on the intensity of sensations, more especially concerning the question of whether intensity should be considered as a quality or as a quantity. The paper by Kiesow, University of Turin, *Ueber das Weber'sche Gesetz*, also belongs to this group. The question of the intensity of sensations is allied, in fact, to Weber's celebrated law, the clarity of which has rather suffered from than profited by the mathematical formulation to which it has been subjected.

It is well known, and Kiesow has brought it up again very opportunely, that this law in substance states simply that, corresponding to the least perceptible differences in intensity or extent between given sensations or objects, there is always the same relation between the strength of the stimuli to which these just noticeable differences in intensity or extent are due. Thus nothing is more exact than the observation of Fullerton and Cattell who point out that this law expresses, not a relation between stimulus and sensation, but a relation between the strength of the stimulus and the size of the error of observation which the observer is likely to make, the size of the error being proportional to the strength of the stimulus.

However that may be, this law of Weber's does not at all help us to understand of just what this *intensity* of sensation consists, because, as Kiesow and Werner have pointed out, we apply this term *intensity* to the mental fact and not to the underlying nervous physiological process which is justly what it behooves us to know. And the question of knowing in what *intensity* of sensation consists raises the question also of knowing in what the *quality* itself consists. Otherwise expressed, what is it, from a physiological point of view, that corresponds to what we call, from a psychological point of view, the *intensity* and *quality* of our sensations? (Concerning the olfactory sensations, Juhasz, of Budapest, distinguishes, in his paper entitled *Zur Grundle-*

[1]Translated from the French by E. L. Clark.

gung der Geruchspsychologie, between their ***quality*** and their ***height*** *Geruchshoehe*.)

According to Boring the *quality* of sensations can depend neither on the specificity of the nervous conductors nor on the single fact of the localization of the central terminations of these nerves at one point rather than another in the cerebral cortex. "It seems that all these nerves are alike and are only passive conductors. If we continue to speak of their specific energies we have in mind only a local specificity of their central terminations. But this concept of quality is nevertheless in opposition to the theory of localization. It is difficult to believe, for example, that the difference between red and blue is only a difference in localization in the cerebral cortex, when some differences in localization have already been admitted for explaining the physiological substratum of the order in which the sensorial elements are disposed in space." Thus would Boring be inclined to hold to the theories of *frequency*, which attribute the several qualities of the several sensations to the respective frequencies with which, in the course of the sensations themselves, the unique physiological phenomenon which is at their basis is repeated, theories manifestly suggested by the fact that to different colors and to different pitches of musical tones there corresponds a single physical stimulus, but one which repeats itself at a varying frequency, each different quality of sensation corresponding to a different frequency. As to the *intensity* of the sensations, the principle of "all-or-none", adds Boring, "seems to render it improbable that the nervous fibres can transmit different degrees of excitation;" therefore he is inclined to think "that when the quality is a function of the nervous frequency, the intensity depends upon the number of fibres stimulated." This latter hypothesis seems contradicted by the experiments of Kiesow showing that "a single tactile fibre on the cutaneous surface is capable, even when entirely isolated, of discerning differences in intensity."

What opposes this theory of frequency is, first, the fact that we discriminate very well, among a large number of physiological phenomena which occur in our organism, the frequency of repetition, that is to say, the frequency pure and simple, more or less rapid, without confusing it with a change in quality. But especially in opposition is the other fact that with this theory one can not understand in what fashion these different physiological frequences can "pile up" in the respective nervous centers in order later to be reproduced at the time of the mnemonic calling up of these specific elementary sensations.

Instead of this theory of frequency may be advanced another hypothesis which supposes that to a different duration of each of the elements of two different physical stimuli (for instance, to a different duration of each one of the semi-vibrations of two rays of light of different color) there corresponds a different "energetic capacity" of the respective elementary physiological activities, provoked by the two stimuli; i. e., a different "energetic capacity" of the elements of the two corresponding nervous currents, to whose elements by analogy to the electrons, we have given the name *"nervions"*. (It is enough only to recall the fact, analogous to the one with which we are here concerned, that other things being equal, a low note, precisely because of

its longer duration, displaces during each of its semi-vibrations a larger volume of air, that is to say, a mass of air of a more considerable energetic capacity, than that displaced by a higher note).

In other words, to different qualities of our sensations, red, green, etc., (mental phenomena) would correspond different energetic capacities of the *"nervions"* of the respective nerve currents (physiological phenomena). Whereas the electrons of the electric currents have all the same energetic capacity, the *nervions*, on the other hand, would have different energetic capacities in specifically different nerve currents. Those who know our works on biological synthesis (*Biological Memory, What is Life?*) know that this hypothesis of nervions has made it possible for us also to explain the reciprocally univocal relation which exists between the specificity of a nerve current (to which corresponds in the mental realm the specific sensorial quality) and the specificity of the nuclear substance in which the nerve current comes to accumulate at the time of its passage from the actual energetic state to the potential energetic state; and they know also that this hypothesis has furnished us the explanation of the fundamental mnemonic character of nervous energy, which nervous energy we have put at the base of all life.

We should have here also an explanation of the *localization* of specific sensations; that is to say, of the fact that the seats of the accumulations of identical or closely related sensations come to be grouped at the same point in the cerebral cortex. Each kind of "nervions", in fact each specific nerve current, should accumulate where, thanks to the presence of other identical or closely related "nervions" which have accumulated there earlier, it finds the most favorable nutritive conditions for the subsequent accumulation of the respective "nervions", in addition to those preceding.

We can, in turn, accept the hypothesis, accepted also by Boring, that the differences in intensity of a single specific sensation "depend upon the number of fibres stimulated." We are entirely inclined to accept this hypothesis, because the sensorial intensity (mental phenomenon) should then become "the conscious correlated fact of this number of stimulated nervous fibres," that is to say, the conscious correlative fact of "different extents or spatial distributions of multiple excitations," which should stamp on this intensity, in addition to its *quantitative character*, a *qualitative* character. This would conform to the demand of Semon who wishes to distinguish between the *intensity* and the *vividness* of sensations (or of sensorial memories). The intensity, according to him, is a *qualitative* aspect and vividness a purely *quantitative* aspect. Semon says, for example, that one can have a very weak evocation—i. e., one of insignificant *vividness*—of a thunderbolt which at an earlier time struck our ears: feeble sensorial evocation leaving intact the *quality* of the strong intensity of the thunder itself; and, on the other hand, we can have a very vivid sensation or arousal of a scarcely perceptible noise of a step which we heard in the night in our bedroom.

If, to the hypothesis that intensity depends upon the number of excited fibres (an hypothesis by which one gives a certain qualitative aspect to intensity) is added the theory that vividness in the sense that Semon uses the word, depends, on the contrary, upon the number of elementary units, or "nervions", which unload or pass during a given time in a single given fibre, one then succeeds in identifying the physiological substratum which can

correspond to the psychological phenomenon of vividness. One succeeds also, by this hypothesis, in refuting the objection which Kiesow, as we have said, had formulated on the basis of his experiments which show that even a single tactile nerve fibre is capable of transmitting differences in intensity. In fact, one may suppose that in this case it is a matter not of *intensity*, properly speaking, but only of *vividness*.

* * *

The questions raised by the so-called "theory of configuration" (*Gestalt* theory) belong in certain respects to these problems relative to quality, intensity, and sensorial vividness, especially as regards the "mechanism of both theories have recourse, the one in order to giveintegration" to which place to the "conscious correlative fact of the number of fibres stimulated" which alone gives to the intensity of a sensation a qualitative character, and the other in order to give place to the conscious perception of the configuration as a group of sensorial elements.

The founders of this theory of configuration are, as is well known, the German scholars Wertheimer, Koffka, and Koehler. They all three attended this Congress which we are discussing, and about them are grouped writers of papers having to do more or less directly with the principal question—Michotte of the University of Louvain, Spearman of London, Otto Selz of Mannheim, Usnadze of Tiflis, Auguste Ley of Uccle, Werner, already mentioned, Reymert of Springfield (Ohio) and others.

As we know, according to the configurationists, sensorial elements by themselves are not enough—as is asserted by the associationists of the English school—to account for the perception of the whole, that is, of the object as a unity. They maintain that it is impossible that the form of an object, such as it appears to our eyes, represents only a mosaic of particular sensations accidentally associated with one other; and they assert that, in order that this chaos of sensations be transformed into a configuration, the intervention of an "integrative mechanism" is necessary. They go even farther and postulate that it is this configuration which constitutes the immediate psychological datum, the primary mental fact, the fundamental *quid* of perception and even of comprehension. The configurationists, said Spearman in his paper on *Two Defects in the Theory of "Gestalt"*, "expressly set out to overturn the view which splits up sensory perception into an ultimate set of sensations."

Against this theory of configuration, today very popular in Germany, we place, in so far as it concerns us, the theory of affective integration and of affective meaning, according to which it is the affective tendencies that give a unity and a meaning to each bundle or mass of sensorial elements which strike our retina or our senses in general. That is, when this or that bundle of sensorial elements succeeds in arousing, in "loosening", a certain affective tendency, one immediately obtains the synthesis, the reduction to unity, the meaning of the sensorial bundle itself, which then, and only then, appears to us as such and such object, as such and such configuration. But a discussion of this subject would lead us too far afield and take too much space; besides we plan to take it up again in an article which we shall publish soon.

* * *

Closely related to the phenomena of *vividness*,, which, as we saw above,

are the phenomena of *intensity*, are others which approximate hallucinations and are named *eidetics*. These phenomena, as we know, have been very carefully studied by Jaensch of Marburg, who at this Congress presented a new paper on the subject. This subject was also treated by Kiesow in his paper *Zur Kritik der Eidetik*, by Gatti of Milan, and by Soola of Berlin.

According to Jaensch, these phenomena, which are in nature close to hallucinations, constitute a phase of the normal development of each individual in the course of his childhood; whereas Kiesow contests the ontogenetic character, so to speak, of these eidetic phenomena and considers them as abnormal, pathological phenomena.

But in his paper before the Congress, entitled *Die typologische Forschungsmethode mit besonderer Berucksichtigung der Eidetik*, Jaensch was determined more especially to make evident that these eidetic phenomena, by means of which the individual literally "sees" what is represented to him by his imagination, lend themselves to typological investigation in so far as they are pecular to the "integrative" type; that is to say, to the type presenting a "reciprocal penetration of functions", as much bodily as mental, which, with the normal individual, are in general clearly distinct and separate from each other. The type of artist who "lives" his world of images is the most familiar example in point.

While recognizing the great value of these studies of Jaensch, we must nevertheless note that he does not make sufficiently evident the very marked affectivity and emotionality of these eidetic subjects, to which precisely the mnemonic rearousals owe their great "vividness", which brings them so close to hallucinations, this great vividness being due to the reënforcement (that is, to what Sherrington, speaking of reflexes, calls "impingement") which the affective tendencies themselves stamp upon these mnemonic rearousals.

* * *

This paper of Jaensch introduces us plainly to "characterology" or "personalistics", a new branch which was the subject of several rather important papers at the Congress. Among these papers we shall limit ourselves to mentioning that of Stern of Hamburg intitled *Personalistiche Psychologie* and that of Prinzhorn of Frankfort having as a title *Echt-Unecht, ein Versuch ueber den tieferen Sinn der Charakterologie*. In spite of their undoubted practical importance, these two papers do not offer concepts of great theoretical value.

And even the two papers of Kretschmer and Wiersma, belonging to the group *Beziehungen zwischen somatischen und psychischen Eigenschaften*, instead of treating the theoretical and philosophical sides of the question, deal only with the various bodily symptoms corresponding to such and such normal or pathological mental dispositions of the individual.

To these studies of "characterology" or "typology" or "personalistics" we must make the same objection as to those of Jaensch which we mentioned in the preceding paragraphs: namely, that we regret that they do not make sufficiently evident the fact that the mental type is always determined in its fundamental lines by its affective nature and more especially: first, by the prevalence or the predominance over all others of a well determined affective tendency, this tendency coordinating and grouping about itself, as around a center, a constellation of less important affective tendencies that it supports

and reënforces, and of which each, in its turn and according to the particular case at the moment, functions as a vicarious representative of the principal tendency; or, secondly, by the presence in the potential state of a multiplicity of affective tendencies, often contradictory, susceptible of activating sometimes one and sometimes another, stamping the conduct of the individual with a character, not of "coherence", but of "incoherence".

"All that is mental," writes Stern, "can be understood only in so far as it is considered as a moment of the total personality, depending upon it, and can be explained only by means of its subordination to the whole." Now this "total personality", on which all depends and by which all is explained, is, from the moment the affective unification is effected, nothing but the affective tendency which has succeeded little by little in taking the upper hand and in imposing itself on all the others. When this domination of a tendency is absolute, one finds oneself in the presence of what is called a "strong personality", a "character all in one piece", and everything then becomes a result and expression of this tyrannical affective predominance. But, we repeat, before this happens the individual may be constituted of several principal affective tendencies, in opposition to one another. In cases of this kind, one has to do, not with *one* personality, but, in substance, with a bundle of several personalities, according as the one or the other of these affective tendencies becomes active and dominant. If we do not take account of all these facts we shall never understand the contradictions in conduct which often lead the psychologist astray in his "personalistic" predictions.

* * *

Much more important from a theoretical point of view were the papers of Ludwig Biswanger, Th. Erismann, G. Ewald and Ed. Spranger on the difference between *understanding* and *explaining* (*verstehen and erklaeren*). Following the distinction today classic in Germany, between *naturwissenschaftliche* and *giesteswissenschaftliche Methode*, that is, between the method of investigation from without, experimental, objective, causal, and the method of investigation from within, introspective, subjective, comparative—following this distinction, we say, these four German writers support the thesis according to which we *understand* when we are able to apply and follow the introspective and subjective method; while we *explain* when we are able only to apply the objective and causal method. "A fact, an event lived, is understood psychologically," writes Biswanger, "not in its being or its real process but in its sense or its *intentional* content. To understand psychologically is to understand in terms of the motives, or, more briefly, to understand the motives," while "we see the essence of explanation in the demonstration of the necessary relation existing between two objects." "The usual language," writes Erismann in his turn, "suggests to us several indications relative to the difference in meaning between *understanding* and *explaining*: I *understand* what you tell me; I *understand* why he acts thus, that he aspires to a certain end; on the other hand, I do not understand the meaningless (*sinnlos*) dance of the atoms, even if it were possible for me to construct from them and consequently to "explain" in its entirety the becoming of nature. *I understand the explanation of the physicist* but *I do not understand* the existence and the becoming of the material world which he 'explains'." "In the sciences of nature," writes Ewald, "research is conducted objectively, with the

aid of the inductive explicative method, approaching things from without; in the moral sciences, it is conducted subjectively, by a method founded on sympathy and *comprehenson,* approaching things *from within.*" In other words, *understanding,* according to these authors, means an analogical comparison of a given phenomenon with certain of our finalistic actions and tendencies; while *explaining* involves an approach to a phenomenon by the method of causal deduction. In the first case, we should have a finalistic explanation; in the second, a causal explanation.

Although it is a question here only of defining certain terms and although one exposes oneself in this way to the danger of raising useless questions of words, it seems to us more in conformity with the common usage to say that we *understand* an object, or phenomenon, or act, when we succeed from the beginning of the perception or by means of a rapid intuitive reasoning quickly to classify this object, phenomenon, or act under some one of the affective or utilitarian (technical) categories familiar to us. But when this affective or utilitarian classification is made only by following a deductive reasoning which permits us, according to our theory of the nature of reasoning, to have the novel object or phenomenon, which is presented to us, derived from a thought combination of other events familiar to us, we then say that we have explained this phenomenon or object. More briefly, one *understands* by immediate intuitive classification; one *explains* by mediate classification arrived at by means of reasoning. *To explain* is to go deeper than *to understand,* because the explanation connects phenomena between which at first sight no link exists; but *to explain* requires a longer and more tortuous path than *to understand.*

We have evidence for this contention in the fact, for example, that we say that we *understand* a given action of our fellow-being when we succeed immediately in classifying it, by analogy, with certain of our actions which are aroused by certain motives, but that we say, on the contrary, that the psychiatrist succeeds in *explaining* certain odd actions of a mad person when it is necessary laboriously to derive them from the combined play of certain elementary mental factors which alone are familiar to us. And we have further evidence in the fact that when an object, for example, pushed beyond the edge of the table falls on the floor, we say that we *understand,* and not that we *explain,* why it has fallen to the floor; while we employ the term *explain* when we speak of the astronomer who succeeds, after a long process of reasoning, in reducing the various modalities of the tide to the same law of gravitation under which belongs the phenomenon, so familiar to us, of the fall of the object from the table to the floor.

But our thesis perhaps approaches that of the authors whom we have mentioned in that the subjective method, seizing and for the most part classifying the things immediately by intuition, without need of long reasoning processes, *understands,* more often than it *explains;* while with the development of the scientific deduction, the objective or *"naturwissenschaftliche"* method *explains* more often than it *understands.*

In any case, there remains the fact on which we have insisted in our *Psychology of Reasoning,* that to *understand,* on the one hand, and *to explain* on the other, both represent only an affective and utilitarian (technical) classification, more or less immediate or mediate, of the new and unknown

phenomenon, object, or event which is presented or produced for the first time before our eyes.

* * *

And here is precisely the time to insist on the action, still so misunderstood or underestimated, that the affective tendencies exert on all mental phenomena. Not alone, let us repeat, to understand, to seize the meaning of, an object and to explain it, are mental acts of affective or utilitarian (technical) classification; but the formation of *concepts* themselves represents simply the mental act by which we range given objects, equivalent under such and such a given affective or utilitarian relation, under such or such categories. And *will* represents only an opposition between an affective tendency directed towards a future end and another affective tendency directed towards a present end; it is only when this opposition results in a victory of the first over the second that one witnesses what is called an act of will. And *attention*, in its turn, represents only an opposition between a primary affective tendency towards a certain end and a secondary affective tendency which holds momentarily in suspense the first, for fear that abandoned to itself it will not attain the desired end. *Pleasure* and *displeasure, joy* and *sorrow, gaiety* and *sadness* are only the satisfactions and dissatisfactions of given affective tendencies at the moment of their activity—their free and complete activity giving pleasure and joy and their interruption provoking displeasure and sadness. *Reasoning* itself, that intellectual activity *par excellence* is nothing other than the unfolding of simply imagined experiences, this unfolding being effected under the impulsion of a primary affective tendency which forces the imagination to create such and such other account of things, and under the control of a secondary affective tendency which, at each stage of attentive reasoning, holds in suspense the primary tendency for fear that to such or such of the simply thought experiences may be attributed a result which is not exactly the one that the experience should give if it were effectively executed.

Now this great participation, continued and omnipresent, of our affective activity in the whole of our mental life, the fact that it is these affective tendencies, and they alone, which move the mind, stimulate our imagination, direct and control our reasonnig, in short, fashion and model our thought—this participation and this fact, let us repeat, are generally misunderstood or underestimated by the psychologists of our day.

A noteworthy exception to this tendency, among the papers given at this Congress, is the paper of Claparéde of Geneva on *Le problème de la volonté*. This writer is quite in agreement with us in distinguishing between *intentional activity* (activity directed by a single affective tendency which is not impeded by any other) and *voluntary activity* strictly speaking, in which "there are two desires in conflict." Thus he arrives at the conclusion that the will "has as a function the settling of questions regarding *ends* while intelligence has the function of solving problems of means." No statement is more exact. The writer adds, however: "In this conflict of tendencies it is only when the superior tendencies win the victory that we say that there has been will." In our opinion, on the contrary, it is not a question of superior or inferior tendencies, but of an affectivity directed towards a future good and of an affectivity directed towards a present good, and one can speak of will only when the victory has been won by the first. A burglar who has stealthily broken into

a house represses his appetite when he finds himself before food in order to hasten to lay hands upon objects of value in which he sees promise of future advantages; a cornered bandit tears himself from the arms of his mistress to flee and avoid future pain of imprisonment: Both these are veritable acts of will, of the same nature as that of the Alpine climber who fights against fatigue and disregards it in order to attain the summit—the object of his aspirations.

To these problems relative to affectivity and will belong the paper of Prof. Ponzo of Turin, *Der Ausdruck des Willenfaktors in der Atmungskurve*, in which he studies the manner in which the mental states constituting or related to voluntary acts are expressed in the respiratory curve; the paper of Young of the University of Illinois, *An Analysis of Observation in the Field of Affective Psychology;* that of Sjoebring, *Pleasure-Displeasure and Character of Object;* that of McDougall, *Pleasure, Pain and Conation;* finally, that of the Hindu psychologist, Gopalaswami, *The Genesis of the Laughter Impulse, a Suggested Modification of the McDougall Theory.*

On listening to this last paper we had the impression that no more than the theory of McDougall (according to which laughter is an antidote to depressing sympathy, in that it keeps us from experiencing a painful feeling in the presence of certain ridiculous or other discordant peculiarities which we notice in our fellow-creatures), does the modification proposed by Gopalaswami (according to which laughter should be the antidote against "the accumulation of the depressing effects caused by a multitude of little deceptions") succeed in overthrowing the older classic theory according to which laughter (and its attenuated form, the smile) consist of only a sudden relaxation of the muscles which have been contracted by fear, by an attitude of self-defense, by an energetic act in the initial stage—this sudden relaxation being affected at the moment when the subject suddenly becomes aware that what has happened or may still happen is quite different from that which, according to his expectation which had caused the contraction, was about to happen. We have examples of this in the laughter of one who, having had a fall, discovers suddenly that he has not hurt himself at all; in the laughter of children, which is made up of a state of fear in its phase of disappearing, and of a state of assurance and tranquillity in its phase of beginning; in the smile of the woman who, after resisting the male with the tension of all the muscles of her body, ends suddenly by yielding herself to sexual desire with a relaxation of all her muscles. And from these examples, the most typical and simple, selected to illustrate the origin of laughter, one passes easily, by means of transformations and gradual derivations, to more complex cases in which the origin of laughter, while remaining fundamentally the same, is at first sight less evident.

* * *

There is a problem which belongs strictly to that of the intimate and continued participation of the affective activity in the mass of our mental manifestations and which has remained until our day buried in obscurity just because these relations have escaped the attention of the psychologists; it is the problem of *consciousness.*

In our study of consciousness, published for the first time in the form of an article in *Scientia,* reprinted in our *Essays of Scientific Synthesis*

and reproduced later in an amplified form in our work on the *Psychology of Reasoning*, we have shown that consciousness, far from constituting an intrinsic property of such and such a mental state, as such and taken in itself, is an extrinsic property of each of the different separate mental states—a property springing from certain modalities of affective relations which exist between the states. In other words, each mental state is neither conscious nor unconscious by itself; it is only the one or the other by relation to another mental state; and each, while being conscious by relation to another mental state A, may be unconscious by relation to another mental state B. We have shown at the same time that the *unity of consciousness* is due to the large extension of the cerebral seats of the affective tendencies themselves, an extension which in most cases makes impossible, at any given moment, activation of more than one affective constellation at a time (except in the normal cases of *distraction* and in the pathological cases of the *doubling of the personality*).

Now, the several papers of the Congress which, directly or indirectly, deal with these problems of consciousness or of its unity or of its doubling, do not succeed, in spite of the great value which they possess, in casting a very vivid light on this field precisely because they do not take account of this relativity of the conscious states and of the affective nature of their relations.

Let it suffice us to cite as an example the otherwise excellent paper *Consciousness and Motor Response*, by Langfeld of Princeton, who sees in the motor reaction the fundamental element of consciousness. Now the fact that many movements remain unconscious (all the acts which we perform in a distracted state, even the movements which we execute when we walk in the street while thinking of things which have nothing to do with walking), proves in the most manifest way that the motor reaction, be it contemporaneous with a given mental state or immediately following upon it, does not suffice, by itself, to communicate to this state a conscious character; while, on the contrary, the conscious memory of the sight of the Bay of Naples does not contain or imply any motor elements.

The paper by Kraus of Prague, *Zum Problem des Unbewussten und der Einheit des Bewusstseins*, and that by Oesterreich, *Einheit und Spaltung des Ich*, do not bring to this field any more clearness and do not help us better to understand these questions.

Oesterreich, for example, distinguishes two fundamental theories: that of the synthesis of the *self* (*moi*) and the monad theory. This last states fundamentally only that the *self* (*moi*) results from the fact of the existence of . . . . . *self*: "The monad theory of the *self* sees in the connection to the self of the subjective contents of consciousness a qualitative factor specific and primary." The other theory, that of the synthesis of the *self*, of which one may say that the beginnings go back to Hume and which is still today that of the Anglo-Saxon and French psychology, sees in the *self* "a link uniting a bundle of perceptions or of functions." To which Oesterreich objects that this "link" (*lien*) "does not let itself be discovered", that one does not know what it is. On this point, it is true, the English associationistic school presents an omission, that with which the configurationists, of whom we have spoken, reproach it—it sees in the perception and comprehension of an object only a synthetic perception and comprehension of a bundle of elementary sensations.

This gap is, however, easily filled if we assume that the link, which Oesterreich declares undiscoverable, is constituted, quite simply, by the one or the other of the affective tendencies existing potentially in our brain, the one or the other becoming, after having been aroused and having persisted for some time, the thread which weaves together one with another all the varied events of a sensorial order (perceptive, motor, etc.) which are produced while it persists, under its impulsion and its control.

And it is when two different affective constellations find themselves exceptionally aroused at the same time (either in normal cases of distraction or in pathological cases of doubled personality) that two distinct links are formed giving place to two selves (*deux moi*) equally distinct and different.

* * *

The pathological doubling of the personality introduces us directly to abnormal psychology. At the Congress which we are considering, however, this field had but few representatives. In the paper of Renschburg of Budapest, *Die Fehler des geistigen Apparates, ihre Psychologie, Physiologie und Physik,* one again finds the above regretted incomprehension of the functioning of the affective tendencies in all our mental activity. The author in fact does not seem in the least to suspect that the majority of errors or faults or insufficiencies or omissions of our mental functioning have as a cause a defect of an affective order: for instance, there occurs a lack of will, when the affectivity directed towards a future good always or nearly always succumbs before the all-powerful affectivity concentrated on a present good; a lack of attention, when the intensity and the possibility of duration of the secondary affective tendency destined to hold in suspense the primary tendency, are insufficient as against the eruption of the too intense primary tendency; incoherence of reasoning, when the primary affective tendency, which ought to activate reasoning and direct it, is of insufficient intensity and duration; errors of logic, arising from the insufficiency of intensity and duration of the secondary affective tendency, and so forth. One will find the demonstration of what we here advance in our previously mentioned work, *Psychology of Reasoning,* more particularily in the three chapters devoted to the pathology of reasoning (dreams and madness).

In his paper on the *Troubles du dynamisme mental et leur interpretation psychologique,* Minkovski of Paris, without expressly recognizing or affirming this importance of the affective factors in the most fundamental mental troubles, nevertheless shows some appreciation of them. Referring to the Bergsonian opposition between instinct and intelligence, this writer seeks to show that the essential difference between schizophrenic dements and dements in general is that in the latter the instinctive, intuitive dynamic activity remains most obvious, while with the schizophrenics it is the reasoning and static capacity which predominates.

We point out in this connection that the instinctive and dynamic activity is that activity which receives its stimulation from one or another of the primary affective tendencies, not inhibited, nor held in suspense by any secondary affective tendency whatsoever; while the reasoning and static capacity is that which manifests itself when it is precisely these secondary tendencies which come into play.

As one might expect, the papers on experimental psychology, of a practical rather than theoretical nature, were very numerous. They were concerned with educational problems, professional orientation, the selection of the best individuals for certain work, services, or functions, etc. They comprised a large collection of small experimental investigations, such as James cleverly characterized as "microscopic psychology", and which Binet with no less wit has called "clock-work psychology." It is, however, undeniable that, when this branch of psychology is unified and systematized, it will be able to render the most useful practical services and increase the "output" of each individual for the greatest good of the social whole.

Let us cite from these numerous papers: *La sélection des mieux doués* and *L'utilisation des tests dans l'organisation scolaire* by Buyse of Tournai; *Application du test collectif de Ballard dans les écoles belges* and *La fonction globale et l'enseignement de la lecture aux enfants normaux et anormaux* by Decroly of Brussels; *Neuere Untersuchungen ueber totale und diskrete Aufmerksamkeit* by Kutzner of Bonn; *Mesure de la vitesse des mouvements chez les ecoliers* by Foucault of Montpellier; *Arbeitspsychologische Untersuchungen* by Poppelreuter of Bonn; *Value of Personal Research* by O'Rourke of Washington; *Die Bedeutung der persoenlichen Gleichung fuer den Lenkenberuf* by Klemm of Leipzig; *Experimentelle Untersuchugen ueber die freie Wahlentscheidung* by Ach of Goettingen; *Ueber den Vibrationssinn* (on the close relationships between vibratory tactual sensations and acoustic sensations) by Katz of Rostock; *Experimental Studies in Consonance and Rhythm* (on the methods of measure of the musical capacity), by Wynn Jones of Leeds.

In her paper, *Zur Frage des praktischen Denkens,* Franciska Baumgarten presents the problem of a "Taylorisation of Thought," that is, of the means of teaching to reason well in everyday problems those who do not possess great natural capacities in this respect. This teaching is given by the Pelman Institute "which proposes to develop practical sense and thought in those who possess neither the one nor the other." And there is a magazine, *Der deutsche Denksport,* "the program of which is to submit thought to veritable mental gymnastics."

The paper of Charlotte Buehler, *Die ersten sozialen Verhaltungsweisen des Kindes,* contains some excellent observations on the first social manifestations of newly born infants and of children up to one year of age.

Other papers have both theoretical and practical interest, as the one of Lewin, *Die Erinnerung an beendete und unbeendete Handlungen,* which holds that interrupted actions are recalled better than those which have been completely finished, and this because of the fact that the affective tendency which was at the basis of the first and stimulated them has remained unsatisfied; or the paper of Marie Grzegorzevska of Warsaw, *Les schèmes tactiles chez les aveugles,* which shows that the tactile schemes distinguish themselves from the visual in this: that the latter include and condense, so to speak, a series of *simultaneous* impressions, while the first are formed on the basis of *successive* impressions, as a progressive palpation in time of the different points of an object of which one wishes to know the geometrical form. Whence the tendency of the blind to "reduce the most complicated relations to the essential geometrical forms."

A sub-group of papers on experimental psychology is formed by those dealing with the so-called psychogalvanic reflex. We cite especially the following papers: *The Conative Indication of the Psychogalvanic Phenomenon,* by Aveling of London; *The Variation in Shape of the Psycho-electric-tachogram,* by Godefroy of Amsterdam; *Some Experiments of the Psychogalvanic Reflex Phenomenon in Monkeys to Simple Stimuli Provocative of Impulsive Reactions,* by Gopalaswamy of Mysore, India; *Zur Frage vom psychischen Korrelate des psychogalvanischen Phaenomens,* by Linde; *The Physics of the Psychogalvanic Phenomenon,* by Thouless of Manchester.

It is known that the psychogalvanic reflex consists in this: when one puts two electrodes of an electric circuit on any two points of the body, no electric current is produced in the circuit so long as the organism is experiencing no emotion; but when any modification comes in the psychical conditions of the subject, especially when there is strong emotion, the galvanometer makes a sudden turn, especially when the emotion is strong; many writers hence think that the galvanometer may serve as a measure of the intensity of an emotion. Abramovski has even used it to measure the effort of will. After having provoked emotional states and taken note of the galvanometric deviation in connection with these states, he again provoked emotional states as nearly identical as possible with the first, but at the same time asking the subjects to inhibit the emotional reactions as much as possible, by an act of will. In this way, he obtained a diminution which, according to him, may serve as a measure of the effort of will.

These experiments on the psychogalvanic reflex show once more that in their intimate nature mental phenomena differ but little, in essentials, from all the other strictly speaking physiological functions. These experiments, then, offer beside their practical results much of philosophical importance.

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To experimental psychology belong also the researches in "behaviorism." These investigations, inaugurated and followed with an especial ardor in America, have terminated, after extending from animals to man, in the "reflex psychology" of the Russian psychologist Bechterev.

This question is treated from the point of view of general methodology by Piéron of Paris in a paper entitled *La psychologie comme science du comportement et le behaviorisme.* One gets the impression that the attempt to eliminate or to depreciate introspection as a method of psychological investigation is supported. This, in our opinion, would be a most serious error. Introspection permits one, in fact, to discover psychological laws, to analyze complex psychical phenomena by resolving them into their most elementary constituent parts, to truly explore the foundation of all our mental life—something that no behaviorist or reflex psychologist is able to do. This is what Piéron himself recognizes when he says that certain reactions of our fellow beings can be made objective only by the aid of the spoken word. But it certainly is not the spoken word which transforms the introspective process into an objective process, for the spoken word of our neighbor who informs us of the condition of his mind acquires a meaning for us only if we associate with this word certain states of *our own* mind which we know only and uniquely by introspection. Were all our psychological knowledge acquired

by introspection destroyed and wiped out from one day to the next (an hypothesis, moreover, inconceivable), the reflex psychology of Bechterev, so much in vogue in Russia today, would be incapable by itself alone to furnish us even the most remote explanation of the simplest and most familiar act.

Here is something to say and to repeat: the veritable method, the principal method, of psychology is *introspection*. By introspection we not only discover, and that by a direct method, the most fundamental laws of our mental activity, we not only succeed in predicting the conduct of our neighbors and in adapting our existence to a social environment in which we are plunged and in which we are called upon to live, but it is uniquely by introspection that we are able even to interpret the data that have been given us by the other methods called objective and exterior (experimental psychology, behaviorism, reflex psychology, and so forth), methods which, without introspection, would be deprived of all meaning and would be for us absolutely worthless.

We have evidence for this, if there still be need of evidence, in the paper of Buytendink of Groningen, *Ueber Orientierung bei hoeheren Tieren*, and in one by Lafora of Madrid, *Hallucinations experimentales, d'origine corticale, chez les animaux et chez l'homme*. In order to explain the behavior of the animals examined, the writers of these two papers have, in fact, had recourse constantly to interpretations of purely introspective origin.

To reject introspection in psychology would be equivalent to failing to reckon with the meaning of words when reading a book; it would be making, as Heymans well noted in his inaugural address, a "psychology without a mind" or, something still more serious, a "science of the mind exclusive of the mind."

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In passing from individual to group psychology we come upon the interesting paper of Karl Buehler, *Zur Grundlegung der Sprachpsychologie*. In our opinion, however, the writer does not put sufficiently in prominence the somatic-psychological correlates in general, and the motor correlates in particular, of the affective tendencies and of the corresponding emotions, which correlates constitute, in the whole animal kingdom, the first spontaneous symbols (the first origin of all semantics), destined to communicate to others and to arouse in them the same affective and emotional states of which the correlates are the external manifestations. The noteworthy pages which Espinas has devoted to this question in his work on *Societés animales* have not diminished in their incomparable value. It is from this first communication of an affective or emotional state of a living being that there is afterwards born the other function of semantics, consisting in commanding and directing the activities of others in such fashion as to make them agree with the activity of the one who commands and guides; it is this latter derived and secondary function upon which Buehler alone insists in a singular fashion.

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The transition is short from this paper of Buehler's to the group of papers on the psychology of inferior races which include the following papers: *The Psychology of the Lower Races*, by Bartlett of Cambridge; *La Mentalite primitive*, by Lévy-Bruhl of Paris; *Zur Frage der psychologischen Eigenart der sogenannten Naturvoelker*, by Mayer-Gross of Heidelberg; *Das primitiv-*

mythische Denken und seine Beziehungen zur Psychopathologie, by Storch.

We find excellent the distinction made by Bartlett between the practical mentality of the savage, which is logical like ours, and his imagining process, which differs from ours only in degree because, more than ours, it is free from reality and unfolds itself without any discipline.

According to Lévy-Bruhl, on the other hand, the primitive mentality differs substantially from ours, because "it is essentially mystic and prelogical, understanding by the word prelogical that it does not restrain itself, as does ours, to avoid even the most striking contradictions."

Now the fact that this primitive mentality does not avoid contradiction in its imaginative constructions rests only on the fact that in these constructions no secondary affective tendency of control ever intervenes to stop what our experience has taught us to be contrary to reality. And if this secondary tendency does not intervene it is precisely because in these fantastic constructions the savage has never had the opportunity to hurt himself in contact with this reality. When this reality makes itself felt in the course of material work, then are met the deceptions which give birth to the secondary affective tendency of control even in the primitive man, who in this way acquires logical aptitudes similar to ours, according to Bartlett. In other words, the logical capacity is acquired only as a result of the continued deceptions that we undergo when we proceed . . . . . without logic.

There is, then, no substantial difference between the civilized and the primitive man. In each are manifest two distinct activities: the alogical, imaginative activity and the practical, logical activity. Only the relative extent of these two activities changes with civilization, and that to the advantage of the logical. But where the deceptions have no opportunity to be produced under the pressure of reality, and such is the case in the imaginative activity, the logical sense is not formed; otherwise stated, there is no emergence of the state of attention aiming to turn aside errors, to avoid the deceptions met with in the past.

This is why certain imaginary constructions of primitive peoples resemble, as Storch shows, our dreams; and this resemblance (as we have shown in our *Psychology of Reasoning*) is due to the fact that there is absent from dreams, on account of their "non-affectivity", all secondary affective tendency of control, suitable to present an obstacle to illogical constructions.

Moreover, even with civilized peoples, logic, which is developed rapidly in practical mental activity, develops, on the contrary, very slowly in speculative thought. We have evidence of this in all the philosophical religious speculation of the Christian patristic and scholastic schools of the Middle Ages, in all the great metaphysical speculations of the past and in the works even of our modern philosophers.

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The last group of papers is connected in a certain measure with the preceding and is concerned with religious feeling. We shall note the paper of Pierre Janet of Paris on *L'excitation sociale dans les sentiments religieux.* The writer derives religious feeling from the need of being loved, supported and directed, and especially from the need of being aroused by means of certain social relations with our fellow beings or with equivalent imaginary beings, in order to strengthen our own forces and to build up our own psychic

tension (this need being felt especially by the psychasthenic). This need of psychic excitation is satisfied in the religious man by means of relations which he establishes in his imagination between himself and God, considered as a superior being, and which replace those of dependence and fear, equally exciting, which exist between son and father, between the woman and her lover, between the slave and his master, between the isolated individual and all society which surrounds and has mastery over him. In his paper *The Psychology of Religion,* Jones of London (a great adherent to psychoanalytic theories) shows the religious feeling to be a survival from infant mentality: "The religious life represents a dramatization, on a cosmic plan, of the emotions, fears, and aspirations which are born of the relations which bind children to their parents." Leuba of Bryn Mawr (United States), and Thouless of Manchester, in their papers on *The Nature, Methods and Field of the Psychology of Religion,* deal especially with questions of method.

All these papers, though certainly excellent and very interesting, nevertheless exhibit a regrettable lack arising from a failure to understand or a tendency to underestimate the social function that religion has been called to exercise in order to constitute the "mental frame work" necessary to transform a simple conglomerate of human beings into a social organism—a function which we brought out some years ago in our study of the religious phenomenon.

Psychology alone is unable to account for the facts of religion. In spite of its numerous mental elements, all of an affective nature, the religious phenomenon is, above everything, a *social* manifestation which can be explained only in so far as one understands the nature and the functions of the social organ constituted by the religious institutions and the priestly caste. Let us not forget that "sin" is always, at the beginning, a directly or indirectly antisocial act.

It is to this social function, so necessary among the peoples of antiquity, that the religious institutions were indebted for their development in the past; and if in the present they suffer a slow atrophy it is because their function becomes less and less useful among civilized peoples. The religious institutions can escape this only when they gradually change their function, as they have among the Anglo-Saxons, into that of teaching or moral education; that is, when they give themselves only the function of inculcating, by affective and emotional communication, the moral feelings which are necessary to social life and to the continued rising of the group toward the more and more noble and elevated forms of progress.

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We have now arrived at the end of our hasty review of the principal papers of the Congress which will certainly remain one of the most important in the annals of psychological science.

To give our synthetic judgment of it we shall sum up our view in the following manner: In all that concerns practical questions, the immediate application of psychology to education, the choice of a vocation, the selection of a personnel capable of making the greatest output, the general Taylorization of all human activities, industrial and commercial, much progress has been made and still other achievements are being made, but we should like very much to insist, even in this branch of psychology, upon the necessity of more

securely founded guiding theories capable of introducing into these researches and their results a more unified coördination.

Much progress has also been made in pathological psychology, although one feels here a still greater and graver need for a healthy theoretical guidance: we cite in this connection only one example, that of the great and somewhat exaggerated popularity which Freudianism now enjoys, in spite of the inconsistency of certain of its theoretical principles and the artificial character of certain applications which it deduces from them (to begin with, its method of interpreting dreams).

On the other hand, as regards theoretical questions properly speaking, we can only make ours these words which the venerated president of the Congress, Prof. Heymans, pronounced in his opening address: "The period in which we live is not for psychology a period of rapid progress along beaten paths; it is in part a period of doubt and discouragement, in part a period of hardy attempts to find new solutions as different as possible from the old."

Now, the principal cause of this state of doubt and discouragement on the one hand, and, on the other, of iconoclastic frenzy which concerns itself with overthrowing, as having lost all value, even the surest and most important achievements of the past, rests in the fact that psychology does not yet occupy among the sciences of life the place which is appropriate for it. In fact, some go to the extreme (as did the English associationists) of considering psychology as a science entirely detached and distinct from biology, having no essential point in common with it; these thinkers run the risk of constructing an edifice without a firm foundation. Others go to the opposite extreme (as do the experimental psycho-physiologists, the behaviorists, the reflex psychologists) of viewing psychology merely as a branch of physiology and (still more serious) as amenable only to the purely physico-chemical methods so popular today in physiology; these scholars run the risk (already serious for biology but infinitely more serious for psychology) of introducing, even in the latter, the most rigid and narrow mechanistic conceptions by rejecting, as unscientific (even in psychology!), all finalistic conceptions. This last extreme is quite simply equivalent *to denying even the facts and phenomena which psychological science is called upon to study and to explain.*

It is to restore a proper balance between these two extremes and to put psychology in the place which belongs to it among the sciences of life which was the aim of the paper given by the writer of these lines under the title of: *En quoi consiste et d'où dérive le finalisme des phénomènes psychiques?*[2] After having recalled all the other finalistic manifestations of life (from assimilation and metabolism, from the phenomena of reproduction, from those of preëstablished adaptations and new adaptations, to the behavior of inferior organisms, to reflexes, to instincts, to affective tendencies and to all our mental activity) we showed that the finalism of our mental activity is closely allied to all other finalistic manifestations of life with which it shares its origin, since, like these other manifestations, it has as its source the mnemonic property of living substance in general.

When one envisages in this manner the exact place that psychology holds among the sciences of life, when one is willing at the same time to remember the finalistic character inherent in every pulsation of life, and to draw from

[2] A translation of this paper is presented in this issue of *The Monist*.

this fact the result that it implies, to know that the affective tendencies are finalistic manifestations *par excellence*, in which is resumed and towards which converges all the finality of the organism, one makes possible the inauguration of quite a new current of psychological investigation, which, far from destroying and depreciating any achievement whatsoever of the past, reestablishes many of them in strength and connects them one with another and to the new achievements.

This amounts to recognizing in substance that, contrary to what was believed by the English associationistic school (today attacked and defeated on this point by the configurationists of whom we have spoken above), sensations are not the only elements beginning with which one can recompose all the complex phenomena of mental life, but that the ultimate elements are of two kinds, sensorial and affective; that it is affective activity which impregnates all the manifestations of thought itself; more than this: that it is their activity which is the sole and unique constructor of thought, and which uses materials of a perceptive order, stored up in our sensorial memory accumulations, in order to build the whole edifice of our imaginative and rational mind, from the most humble and lowliest intuition of the mentally impoverished to the most superb creation of the man of genius.

We allow ourselves to hope that, in spite of the defects which it no doubt presents and which are due in a certain measure to the very novelty of the field explored, our work, *Psychology of Reasoning,* already mentioned several times, is of a nature to bring out the results to which this new and fundamentally affectivistic position of psychological research is likely to lead, in explaining all mental phenomena, even the most complicated, even the most "intellectual", such as reasoning in its highest form—such as mathematical and metaphysical reasoning.

However that may be, this Congress,—the second since the War to reunite psychologists under an international caption, but in reality the first to reunite fraternally equal numbers of psychologists from the two groups of countries formerly at war,—however that may be, this Congress, we think, left with all those who had the good fortune to attend it the best impression. By its perfect organization (for which we must thank, besides the president, his indefatigable general secretary Prof. Roels), by the meeting of the most eminent psychologists of the entire world, even from Japan, India and Mexico, by the great vivacity of its discussions, the Congress furnished evidence of the great vitality, of the vigorous and fertile ferment of thought which today animates all those who are devoted to this admirable object of investigation, the microcosm of our mind.

At the same time, by the cordiality of relations which has not for an instant diminished even between the representatives of the two groups once at war, by the firm personal friendships which were tied there even between savants who had never seen each other previously, by the disinterested enthusiasm of which each gave proof in recognizing and proclaiming the worth of investigations made by others, the Congress gave to all who took part in it the anticipation of what the civilization of tomorrow can be and ought to be when it shall be enlightened by the torch of human brotherhood sustained and kept alive by the highest nobility of thought.

MILAN, ITALY. EUGENIO RIGNANO.